

Region 24 700 MHz  
Regional Planning Committee

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Chairperson

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March 7, 2005

Federal Communications Commission  
Wireless Telecommunications Bureau  
Chief, Public Safety and Private Wireless Division  
445 12th Street, SW  
Washington, DC 20554

Subject: WTB Docket No. 02-378, Region 24 - 700 MHz Regional Plan

Dear Sirs:

Attached is the Region 24 700 MHz Regional Plan for your review. This document is the result of over 3 years of work by the Region 24 Regional Planning Committee and we feel it best represents the needs of the public safety community of the State of Missouri. I commend the regional planning committee members for the hard work and long hours invested to address issues that will benefit public safety communications in the region, as many of the issues needing to be decided to best prepare the region were unfamiliar to members new to the regional planning process. As the 700 MHz band is clear of incumbent broadcast stations, we feel fortunate this plan will allow for the rapid, successful and effective implementation of 700 MHz spectrum in Missouri, allowing public safety entities to acquire the tools needed to complete their ever-changing mission. In addition, public safety 700 MHz spectrum is immediately available throughout Missouri.

I also want to thank the National Public Safety Telecommunications Council (NPSTC) and the NPSTC Support Office for their continued support to the region. The NPSTC support office was always available for questions regarding regional planning and the CAPRAD database training the Region 24 members received will inevitably improve 700 MHz public safety spectrum implementation within Missouri.

As Region 24 has several eligible entities awaiting the FCC approval of the Region 24 700 MHz plan in both Independence, Missouri and St Louis County, Missouri to accommodate each entities planned system development, please do not hesitate to contact me should any questions arise.

It is our hope the implementation of this plan meets your approval and allows for approval to allow this much needed spectrum to be utilized in Missouri. Please feel free to contact me if there are any questions at 573 526 6105.

Regards,

Stephen T. Devine, Missouri State Highway Patrol  
Chairperson Region 24

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### **1    764-776/794-806 MHz Regional Plan for Region 24 (Missouri)**

This document is the Regional Plan for Region 24 (Missouri) describing how the 764-776/796-806 MHz General Use frequencies will be allocated and implemented in the Region.

#### **1.1    Regional Chair**

The Regional Chairperson of Region 24 is Stephen Devine. His information is below:

Stephen T. Devine, Patrol Frequency Coordinator  
Communications Division  
Missouri State Highway Patrol General Headquarters  
1510 East Elm  
Jefferson City, Missouri 65101  
Phone 573-526-6105  
FAX 573-526-1112  
Email [steve.devine@mshp.dps.mo.gov](mailto:steve.devine@mshp.dps.mo.gov)

#### **1.2    Other RPC Officers and full RPC Membership**

The Vice Chairman/Secretary of Region 24 is Steve Makky, Sr. His contact information is below:

Mr. Steve Makky Sr.  
St. Charles County Emergency Management  
301 N. Second St, Room 280  
St Charles Missouri 63301-5410  
Email [scc911@win.org](mailto:scc911@win.org)  
Phone 636 949 3031

The duties of Treasurer within Region 24 are assigned to Stephen T. Devine, Regional Chairperson.

Membership in the Region 24 Regional Planning Committee is open to any interested party. Committee Officer requirements, voting procedures and membership attendance requirements are listed in the Region 24 Planning Committee bylaws. Appendix A contains the Region 24

bylaws. Appendix B is a list of Region 24's initial members, their agency/affiliation and voting status. Voting and operating procedures are described in Section 2.2 of this plan.

## 2 Region 24 Description

Region 24 encompasses the entire state of Missouri, consisting of 114 counties and the City of St Louis, which does not reside within a Missouri county. An alphabetical list of the individual counties can be found listed in **Appendix C**.

The State of Missouri has diverse geography along with a varied population base. Ground elevations in Missouri vary from 70 meters AMSL in the Mississippi Delta of extreme southeast Missouri to 500 meters AMSL in the Missouri Ozarks along the Arkansas border. The terrain of northern Missouri is relatively flat with sparsely populated areas, allowing for effective radio propagation. Throughout southern Missouri, however, varying ground elevations along with some of the worlds largest concentrations of lead, iron and other mineral deposits create a challenge to agencies in the Region attempting to develop efficient radio networks in any frequency band.

Missouri's roadways are some of the most frequently traveled in the country. The number of vehicles traveling Missouri roadways in 2002 amounted to well over seven (7) times its existing population of 5.8 million. These itinerant travelers take a heavy toll on all Missouri public safety agencies.

The population of Missouri is 5.8 million people (Census January 2001). Over 80 percent of this population is concentrated in the St Louis and Kansas City Metropolitan areas. These two large metropolitan areas are made up in part or all of 35 counties. These areas are adjacent to both Region 13 and Region 16 (Southern Illinois and the State of Kansas, respectively) and require Missouri to obtain inter-state frequency coordination with both Regions when attempting any frequency assignments in these densely populated areas.

Other areas in Missouri consist of small concentrated pockets of population surrounded by areas of sparse population or with large amounts of unpopulated U.S. federal forest. These diverse demographics, combined with the RF propagation difficulties stated above, make for challenging frequency allotments. Previously, frequency allotments in areas of Region 24 adjacent to Regional areas other than those listed above have been successful primarily due to the sparse population near each Regional border. Region 24 (State of Missouri) has eight (8) adjacent Regions. They are as follows:

Region 13	Southern Illinois
Region 17	State of Kentucky
Region 39	State of Tennessee
Region 4	State of Arkansas
Region 34	State of Oklahoma
Region 16	State of Kansas
Region 26	State of Nebraska

In previous NPSPAC 821 MHz frequency allotments, spectrum amounts disproportionate to population densities were allocated due to differing methodologies used in adjacent NPSPAC Regions and the timing of adjacent regions plan approval. This resulted in a minimum number of channels available for Region 24, particularly in the Kansas City and St. Louis areas. In the 700 MHz band, county allotments for both narrowband and wideband channels have been developed based on population densities relative to adjacent Regions. Due to the Region's diverse population densities and the scarce spectrum resources in Missouri's populated areas, it is anticipated the majority of requests for voice/data spectrum will be from the Kansas City and St Louis metropolitan areas, which both currently operate existing 800 MHz radio networks.

It is anticipated that other areas within Region 24, including areas in the Southwestern parts of Missouri, may request 700 MHz channels from established county pool allotments to either expand existing 800 MHz systems or develop new 700 MHz systems

## **2.1 Notification Process**

821 MHz Region 24 Chairperson, Stephen T. Devine, appointed Ron Shook of Greene County 700 MHz Convenor on July 1, 2000. A 700 MHz Regional Planning Committee meeting date was set for October 5, 2000. Interested parties were given 90 days notice prior to the first meeting. Announcements indicating the date, time and location of the first meeting were sent by mail to the FCC Wireless Telecommunications Bureau and, posted in the following industry periodicals: MRT Magazine, Radio Resource Magazine and the Association of Public Safety Communications Officials, Inc. magazine. The meeting information was also posted on the Missouri Uniform Law Enforcement System (MULES) Teletype network and received by all law enforcement agencies in both Missouri and the surrounding Regions. The Missouri State Highway Patrol also issued a press release regarding the convening of the committee and including the first meeting information. This awareness allowed for the dissemination of meeting information to hundreds of law enforcement agencies, public safety agencies and news media throughout Missouri and the eight (8) adjacent states to Missouri. The Missouri State Emergency Management Agency, along with the Missouri National Guard was contacted and notified of the convening of the 700 MHz Regional Planning Committee. The convener also contacted several agencies via email that expressed interest in the planning process prior to the meeting. There are no Native American tribal reservations located within Region 24. Copies of the announcements sent to the FCC, any Public Notices released relating to Region 24's meeting, the ads placed in the industry periodicals, the Missouri SHP press release, and emails sent to interested agencies are included in Appendix D. The 700 MHz first meeting convened on October 5, 2000 by Ron Shook. Stephen T. Devine was elected the Chairperson of the Region 24 700 MHz Regional Planning Committee. Mr. Steve Makky, Sr. of the St Charles County Emergency Management Agency was elected to the position of Vice Chairperson/Secretary of the Region 24 700 MHz Regional Planning Committee. The FCC did not issue a Public notice for this meeting.

## *2.2 Operations of the Regional Plan Committee*

This committee will use Robert's Rules of Order to conduct meetings. All decisions will be by clear consensus vote with each Public Safety Agency in attendance having one (1) vote. Additional voting member considerations are listed in the Region 24 Bylaws, Appendix A. The meetings are open to all interested persons and public input time is provided for anyone to express a viewpoint or to have input to the Regional Planning process.

Subcommittees have been formed as needed to work on specific issues. For the initial planning of Region 24, three subcommittees were formed:

**Implementation, Interoperability, and Technology Subcommittees:** These subcommittees are intended to work on the details of specific issues and make recommendations to the full committee for the development of the Region 24 Regional plan. Any changes to the Regional plan must be voted and approved by the full Regional Planning Committee. Participation in subcommittees is open to any member. The Chair of the Regional Planning Committee appoints each Subcommittee Chair. The Region 24 subcommittees are listed below. Subcommittee participation is open to the entire membership, with the Chairpersons responsible for ensuring the content and atmosphere of the plan best represents the region as a whole.

<b>Technology</b>	Steve Makky, Sr. St Charles County Emergency Management, <b>Chairperson</b> Charles Gastler, St Louis City Police Department, Member Thomas Kearns, Tyco/MA-Com, Commercial Member Roger Strobe, Missouri State Highway Patrol, Member Jon Martin, Motorola Commercial Member
<b>Interoperability</b>	William Cade, Jasper County 911, <b>Former Chairperson</b> (Moved from Region 24 in Spring 2002 to the State of Florida and Ron Shook, Greene County Emergency Management was appointed Interoperability Subcommittee Chairperson by the Regional Chair). Ron Shook, Greene County Emergency Management ( <b>Chairperson</b> ) Stephen T. Devine, Missouri State Highway Patrol
<b>Implementation</b>	Stephen T. Devine, <b>Chairperson</b> Roger D. Strobe, Missouri State Highway Patrol

A minimum of two (2) full committee meetings will be held every twelve months. When possible, meetings will be held in the months of April and October. The Region 24 Chairperson has the authority to call an additional meeting at a time when he/she deems necessary or when he/she deems it in the best interest of the Region to convene. In an attempt to offer as many people as possible the opportunity to contribute to the Regional 700 MHz Planning Committee, one (1) of the two meetings will be held in various locations within Region 24 and due to its central location, the remaining meeting will be held in Jefferson City, Missouri.

The Region 24 700 MHz list-serve, <http://groups.yahoo.com/group/RPC24/> was created in July of 2001. The Region 24/Missouri public safety communications list serves,

<http://groups.yahoo.com/group/NPSPACRegion24/>,

<http://groups.yahoo.com/group/rpc24>

<http://groups.yahoo.com/group/region24siec>

<http://groups.yahoo.com/group/moapco911>

All were created in 2000 to exchange information as well as disseminate original meeting times, dates and agendas throughout the Regional Planning process for the initial 700 MHz meeting and subsequent Region 24 (Missouri) SIEC meetings. These list serves are utilized to disseminate messages on regional planning progress and meeting agendas and serves as an excellent historical resource for regional planning development.

Beginning two years after Federal Communications Commission approval of this Regional Plan, the Chairperson shall call a meeting of the Regional Planning Committee to elect a Chair, Vice Chair and Secretary to serve for a two-year term. There is no limit to the number of terms that may be served by officers of the 700 MHz Regional Planning Committee.

If the Chair is unable to serve a complete term, the Vice Chair will serve as Chair until the next 700 MHz Regional meeting. If both the Chair and Vice Chair are unable to serve their full terms, one or the other should make an effort to call a special meeting of the Committee to elect replacements. If for some reason, neither the Chair nor the Vice Chair can call the special meeting; the State or any County within the Region may call for a special meeting, giving at least 5 days notice, to elect replacements.

A chronological list of meetings, summary of minutes, meeting announcements and agendas outlining Region 24 progress in 700 MHz development is located in **Appendix D** of this document.

### **3 Regional Plan Administration**

#### ***3.1 Procedure for Requesting Spectrum Allotments***

A. Upon FCC approval of this Plan, Region 24 will announce to the region that 700 MHz public safety channels are available in the Region and that channels have been assigned to pool allotments to counties within the Region. All available methods will be used to notify public safety entities of channel availability in the Region (see Section 2.1). All requests will be considered on a first come, first served basis. Region 24 supports the National Coordination Committee Pre-Assignment Rules and Recommendations listed in Appendix F, and will use these guidelines as a template to determine if an application submitted to the Regional Planning Committee meets Regional Planning standards. It is recommended that applicants familiarize themselves with these recommendations prior to submitting

applications for Region 24 700 MHz public safety system implementation. In order to maintain accurate records in the CAPRAD database, applicants will provide Region 24 with physical copies of their application along with associated documentation for Regional Planning Committee review. The Regional Planning Committee will enter the FCC 601 form into the CAPRAD database before the application is forwarded to the FCC certified coordinators.

In general and unless otherwise noted, the Region 24 Regional Planning Committee will adhere to the published National Coordination Committee Implementation Guidelines for 700 MHz Public Safety Regional Planning Committees.

B. When applying for new 700 MHz channels, the Regional Planning Committee looks forward to 700 MHz applicants working with neighboring agencies to promote and continue the establishment of interoperability within their community and allow for the equitable distribution of existing spectrum allocations to promote efficient frequency use when applying for 700 MHz spectrum. Region 24 expects applicants to be cognizant of the fact that moving to the 700 MHz band may create a degree of isolation between themselves and neighboring agencies, and Region 24 looks forward to working with these applicants on a case-by-case basis on how to maintain spectrum availability in their area, while continuing to promote interoperable communications.

C. To request channels from Region 24, a full application package must be submitted to the Regional Planning Committee in physical written form for entry by Region 24 personnel in the CAPRAD database <http://caprad.nlectc.du.edu/login/home>. The application must include:

An FCC Form 601,

A short description of the proposed system,

A justification for the additional spectrum,

An interference prediction map using the current version of TIA/EIA TSB 88 guidelines,

Maps showing all interference predicted in the proposed system,

Documents indicating agency-funding commitments sufficient to fund the development of the proposed system(s) and an indication as to when they will migrate from their existing system to the new system.

D. The Chair will distribute the request to all other agencies with allotments in the plan for review and approval electronically. Absent a protest, the Regional Planning Committee will approve the application and (if applicable), upon receipt of a 'cancellation consent letter' (See Section 3.1 B. above), submit it, through the CAPRAD database, to the applicant's preferred FCC-certified frequency coordinator for processing. This process meets the requirements of Rule 90.176 (c).

The CAPRAD database will reflect the approved application and place the channels for the proposed system in "pre-license" status.

E. Allocation Disputes: An agency may protest a proposed system within 30 calendar days of the original distribution. Protests will only be considered if the allocation does not conform to plan criteria or objecting agency or the Chairperson can show harmful interference is likely based on the information submitted by the agency requesting the new allocation. If an agency with pre-licensed/Region approved co-channel or adjacent channel allocations objects to a proposed allocation due to concerns about potential interference, the objecting agency may request field tests be done to confirm or refute interference potential. The completion of these field tests will be required for Regional application approval. Coverage area service/interference contours of the proposed system(s) should meet values designated in Section 6.1 of this document. Any costs associated with field tests or any other requirement to obtain Region 24 plan approval are the responsibility of the agency submitting application to Region 24.

The parties involved must resolve the allocation dispute and notify the Region Chair within 14 calendar days. If the parties involved cannot resolve the allocation dispute within that timeframe, then a special full Committee meeting will be scheduled to consider and vote on the protest. If approved, the application will be submitted through the CAPRAD database to the applicant's chosen FCC-certified frequency coordinator for processing

**F. Lower Power "Campus Eligible" General Use Channels:** In the implementation of 700 MHz public safety spectrum throughout Region 24, there may be opportunities for increased channel reuse when developing radio systems for "campus" type operations. Examples of those who may capitalize on this opportunity include hospitals, stadiums, malls or places of public gathering, public universities, transit systems and ports. While these channels have been designated in county pool allotments with proper designations, they do not enjoy the benefits of countywide channels in that they are not cleared for usage over a wide area. In many instances, facilities require a smaller or more specific geographical coverage area than assumed in the initial channel packing plan and may be able to be reused more efficiently. These "campus" type systems also, in many cases, require in-building or confined space/ tunnel radio coverage or communications along a linear pathway, such as a maintenance or right of way. Public safety channels can be allotted to this type operation in a region and can lead to effective system development, along with increased spectral efficiency, if power levels and Area of Protection (AOP) of the area are taken into account in system planning. These parameters must be established appropriate to the area of coverage. In order to facilitate this effective method of system implementation, channels have been identified in certain areas of Region 24 that may be utilized in a smaller service area. These channels are NOT eligible to be utilized throughout the county they are allotted to and the following criteria must be adhered to when requesting channels from Region 24 for operations of this type:

The 50dBu service contour of the proposed system must not exceed an area more than 2 miles from the proposed service area. When this 2-mile distance extends to an adjacent region, the applicant must obtain concurrence from the adjacent region. Reduced external antenna height, along with reduced ERP, directional antennae, distributed antenna systems, radiating "leaky coax," are all tools that should be utilized in the development of these type systems. Region 24 will ensure the development of these type of systems will in no way interfere with co-channel or adjacent channel users within

Region 24 or Region 24's adjacent regions. The Chairperson, or a majority of the members of the region, has the authority to request and require engineering studies from the applicant that indicate no harmful interference will be introduced to any co-channel or adjacent channel existing user prior to application approval. For 12.5/25 kHz co-channel assignments, the 50dBu service contour of the proposed stations will be allowed to extend beyond the defined service area for a distance no greater than 2 miles. An adjacent/alternate 12.5/25 kHz channel shall be allowed to have its 60 dBμ (50,50) contour touch, but not overlap the 40dBμ service (50,50) contour of an adjacent/alternate system being protected. Evaluations should be made in both directions to ensure compliance. The approval of systems utilizing county allotment channels labeled "Campus", are subject to approval of the Region 24 700 MHz regional planning committee. They are the final authority on parameters associated with "campus" type operations.

If Region 24 receives an application for low power fixed use and the proposed service contour encroaches onto an adjacent region prior to the channel allotted to the region being implemented in a specific system, the application must be modified so the service contour does not encroach into the adjacent region **or** the applicant must supply the Region 24 700 MHz Regional Planning Committee with written concurrence from the adjacent region permitting the original design.

### ***3.2 Procedure for Frequency Coordination***

The Region 24 Planning Committee will adhere to the National Public Safety Telecommunications Council's (NPSTC) 700 MHz General Use channel sort as shown on the CAPRAD database for narrowband General Use channels. The Region created its own sort for the wideband data channels. (See Appendix G). Region 24 will participate in the CAPRAD database and keep the Regional Plan and current frequency allotment/allocation information on the database. The Region 24 Regional Planning Committee has both the ability to accept recommendations from the committee and, if approved, the authority to change the original frequency allotment. In order to keep the most current frequency allotments within Region 24, an annual review of the allotments will be made at one of the scheduled meetings by the full committee and recommended changes to the plan will be voted on. The majority of members in attendance at a meeting of the full Regional Planning Committee must approve any changes to the Regional allotments. If at any time a system is allocated channels within Region 24 and the system cannot be developed within the agreed upon guidelines (slow growth), the channels will be returned to the county pool allotments they originated from and again be available to other agencies in the region. If plan modifications are approved, the Chairperson will, if necessary, obtain adjacent Region approval and file a plan amendment indicating the approved changes with the Federal Communications Commission.



### **3.3 Allocation of Narrowband “General Use” Spectrum**

The Region 24 Technology Subcommittee recommends that allotments be made on the basis of one 25 KHz channel for every two (2) voice channel requests and one 12.5 KHz channel for each narrowband data channel request. This recommendation is approved by the full Committee and is part of this plan. Allotments will be made in 25 KHz groups to allow for various digital technologies, at various bandwidths, to be implemented. All agencies requesting spectrum during the initial filing window (see Section 3.1) will be allocated channels if plan requirements are met. Agencies using Frequency Division Multiplexing (FDMA) will be expected to maintain 12.5 KHz equivalency when developing systems and will be required to utilize BOTH 12.5 KHz portions of the 25 KHz block. In most cases, this will require the geographic separation of each 12.5 KHz adjacent channel. In order to promote spectrum efficiency, Region 24 will ensure that systems allocated 25 KHz channel blocks will utilize all of the channel and not “orphan” any portions of a system designated channel. (See Section 6.3)

The Region 24 700 MHz Regional Planning Committee will be the final authority on the approval of applications for 700 MHz General Use channel allocations.

### **3.4 Low power Channels**

The FCC in the 700 MHz band plan set aside channels 1 - 8 paired with 961 – 968 and 949 – 958 paired with 1909 – 1918 for low power use for on-scene incident response purposes using mobiles and portables subject to Commission-approved Regional Planning Committee Regional Plans. Transmitter power must not exceed 2 watts (ERP).

Channels 9 –12 paired with 969 – 972 and 959 – 960 paired with 1919 – 1920 are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP).

These channels may operate using analog operation. To facilitate analog modulation, this plan will allow aggregation of two 6.25 KHz channels for 12.5 kHz bandwidth. On scene temporary base and mobile relay stations are allowed (to the extent FCC rules allow) antenna height limit of 6.1 meter (20 feet) AGL (Above Ground Level). However, users are encouraged to operate in simplex mode with the least practicable amount of power to reliably maintain communications whenever possible. This plan does not limit use to analog only operations and channels are intended for use in a wide variety of applications that may require digital modulation types as well. The use of EIA/ TIA-102, Project 25 Common Air Interface is required when using a digital mode of operation.

In its dialog leading up to CFR §90.531 allocating the twenty-four low power 6.25 kHz frequency pairs (of which eighteen fall under RPC jurisdiction)<sup>1</sup>, the Federal Communications Commission (FCC) suggested that there is a potential for multiple low power applications, and

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<sup>1</sup> See paragraphs 35 through 39 in FCC’s Third Memorandum Opinion and Order for WT Docket No. 96-86 adopted September 18, 2000.

absent a compelling showing, a sharing approach be employed rather than making exclusive assignments for each specific application as low power operations can co-exist [in relatively close proximity] on the same frequencies with minimal potential for interference due to the 2 watt power restriction.

Whereas advantages exist in not making assignments, the reverse is also true. If, for example, firefighters operate on a specific frequency or set of frequencies in one area, there is some logic in replicating that template throughout the Region for firefighter equipment. If there are no assignments, such a replication is unlikely.

In seeking the middle ground with positive attributes showing up both for assignments and no assignments, we recommend the following regarding assignments associated with the eighteen (18) low power channels for which the Regional Planning Committee has responsibility:

- Generic - Channel #'s 1-4 and 949-952 are set aside as generic 2 watt channels for use by public safety agencies operating within Region 24, and the complementary mobile channels # 961-964 and 1909-1912 are set aside as 2 watt generic mobile channels also for use by public safety agencies likewise operating within Region 24.
- Fire/ EMS/ Consequence Management - Channel #'s 5-8 are designated as Fire Protection/ Emergency Medical and Consequence Management 2 watt channels for licensing and exclusive use by the Fire/Emergency Medical disciplines, and the complementary mobile channel #'s 965-968 are set aside as Fire/Emergency Medical and Consequence Management 2 watt mobile channels also for licensing and exclusive use by the Fire/Emergency Medical disciplines.
- Law/ Crisis Management - Channel #'s 953-956 are set aside as Law Enforcement/Crisis Management 2 watt channels for licensing and exclusive use by the Law Enforcement discipline, and the complementary 2 watt mobile channel #'s 1913-1916 are set aside as Law Enforcement/Crisis Management mobile channels also for licensing and exclusive use by the Law Enforcement discipline.

Multidisciplinary Joint Public Safety Operations - Channel #'s 957-958 are set aside as Multidisciplinary Joint Public Safety Operations 2 watt channels for licensing and the complementary 2 watt mobile channel #'s 1917-1918 are also set aside as Multidisciplinary Joint Public Safety Operations Channels for use by political subdivisions and public safety agencies operating under a unified command at a common incident for the express mission of safety of life, property or environment.

Simplex operations may occur on either the base or mobile channels. Users are cautioned to coordinate on scene use among all agencies involved, particularly when the use of repeaterized modes is possible at or in proximity to a common incident. Users should license multiple channels and be prepared to operate on alternate channels at any given operational area. Again, Region 24 Regional Planning Committee will recommend to the Missouri SIEC that all 700 MHz users and applicants to have **the capability to access ALL** of the thirty-two

(32) NCC approved interoperability channels in both duplex and simplex modes. Under no circumstances may a user claim a channel as exclusively theirs; all 700 MHz interoperability channels are under the administration of the Missouri Statewide Interoperability Executive Committee.

### ***3.5 Wideband Data***

TIA has developed a wideband data interoperability standard based on 50 KHz channel bandwidth, TIA-902 which is pending FCC approval. The RPC shall also consider applications for aggregation of data channels up to 150 kHz. Each county within Region 24 shall be allotted, at a minimum, 150 kHz of contiguous bandwidth. If one entity exhausts the spectrum resources within the county, thus precluding assignment to other interested agencies, that agency must demonstrate its willingness to cooperate with the precluded agencies within the county to provide access its facilities for throughput. In such situations, each agency shall internally negotiate costs without mediation by the Regional Planning Committee. The final implementation budget, as well as the abridged loading figures shall be forwarded to Region 24 prior to adding the new users.

The ranking criteria for each allocated 50 KHz General Use Wideband data channel in Region 24 will be developed in accordance with NCC Implementation Subcommittee Guidelines. Applicants will be required to provide the Regional Planning Committee with their identified wideband needs so the region can determine the number of wideband data channels needed.

### ***3.6 Dispute Resolution – Intra-Regional***

In the event an agency disputes the implementation of this plan or the Federal Communications Committee approval of this plan or parts of this plan, the agency must notify the Chair of the dispute in writing. This section does not apply to protests over new spectrum allocations (see Section 3.1). The Chair will attempt to resolve the dispute on an informal basis. If a party to the dispute employs the Chair, then the Vice Chair will attempt resolution. In such cases, the Chair shall be deemed to have a conflict of interest and will be precluded from voting on such matters. If after 30 days the dispute is not resolved, the Chair (or Vice Chair) will appoint a Dispute Resolution Committee consisting of a member from the State of Missouri and at least five members from the Counties in Region 24. That committee will select a Chair to head the committee.

The Regional Plan Chair (or Vice Chair) will represent the Region in presentations to the Dispute Resolution Committee. The Committee will hear input from the disputing agency, any effected agencies and the Region Chair. The Committee will then meet in executive session to prepare a recommendation to resolve the dispute. Should this recommendation not be acceptable to the disputing agency/agencies, the dispute and all written documentation from the dispute will be forwarded to the National Association of Regional Planning Committee for dispute resolution. As a last resort, the dispute will be forwarded to the Federal Communications Commission for final resolution.

### *3.7 Priority Matrix*

In the event that spectrum allocation requests conflict and cannot all be accommodated, the following matrix will be used to determine priority for allotment. This matrix will only be used if two requests are received in the same time frame for the same number of channels. Otherwise, the first come first served procedure of Section 3.1 will be used.

- Priority is given to users fundamentally involved with the protection of Life and Property (15 points)
- Priority is given to multi-agency systems that promote multiple jurisdictional, multi-agency, inter-discipline interoperable communications within a sub-regional area. These systems can be either a group of separate departments within a large agency or groups of agencies operating together under a large blanket agency, or a combination of both. (25 points)
- Documentation of proposed funding to construct the system using these 700 MHz frequencies must be available and accompany the original spectrum request. (25 points)
- The submission of some form of proof of financial commitment, accompanied by a RFP (Request for Proposal) outlining the design of the proposed system and detailing the development of the requested channels will be required to be submitted to the Regional Planning Committee prior to approval. (35 points)

If there are more applicants than frequencies available for a given area, the above criteria will be used to grade each application before the committee.

This process, if required, will be treated as a dispute and the procedures outlined in Section 3.6 using the above criteria will be used to allocate the frequencies.

## **4 PROCESS FOR HANDLING UNFORMED REGIONS**

The Implementation Subcommittee recommends that all Regions use the following pre-planning methodology to facilitate coordination with adjacent Regions. This procedure will provide a spectrum allotment for adjacent Regions that do not immediately form a Committee.

Counties or other geographic subdivisions within 70 miles of the Regional border need to share spectrum with the adjacent Region(s). The sharing indicated is inherent in the NPSTC Packing Program, as it views all counties nationwide as separate entities while ignoring state borders. With all criteria being equal, this ensures all counties are provided sufficient spectrum in accordance with their surrounding counties. The appropriate ratio of channels shall be allotted to counties in adjacent Regions based upon each county's population. A 25 kHz building block will be used to distribute spectrum between the Regions. A description of the demographics of the affected border areas shall be included.

The requirements for adjacent Region concurrence will require a waiver if the adjacent Region has not yet formed. The Region filing the Plan must use the pre-planning procedure outlined above. The waiver request must be filed concurrently with the Plan and contained in the cover letter.

## **5. Coordination with Adjacent Regions**

The Regions adjacent to Region 24 are listed below:

Region 13, **Southern Illinois**

Region 17, **Kentucky**

Region 39, **Tennessee**

Region 4, **Arkansas**

Region 34, **Oklahoma**

Region 16, **Kansas**

Region 26, **Nebraska**

Region 15, **Iowa**

Region 24 has coordinated channel allocations and received concurrence with all its bordering Regions by providing copies of the Region 24 plan (including channel allotments) to each adjacent Region using the CAPRAD database and by mailing hard copies of the Plan to the adjacent Region's Chairperson or Convener.

Region 24's borders with Region 4 and Region 34 are sparsely populated and generally, the existing NPSPAC 821/866 MHz band frequencies are not built out on either side of these regional border areas with Region 24. The east central and west central Region 24 borders, with Region 13 and Region 16 respectively, are some of the most urban densely populated areas of Missouri, while Region 24's borders with Region 34 (Oklahoma), Region 26 (Nebraska), Region 39 (Tennessee), Region 4 (Arkansas), Region 15 (Iowa) and Region 17 (Kentucky) are some of the most rural, sparsely populated areas in the Midwest. The CAPRAD database and its associated packing plan will provide minimum channel allotments for all of Region 24's bordering regions. This method was recommended by the NCC Implementation Subcommittee as a way to assure that adjacent Regions, which did not enter the Regional Planning process immediately, would not find all frequencies assigned in their borders.

Therefore, adjacent Regions 4, 34, 16, 15, 26, 13, 17, and 39 should all be able to satisfy voice and narrowband data requests along their border areas with Region 24. However, if an adjacent Region has difficulties satisfying intra-regional requests due to channel allocation within Missouri, this committee pledges to work with that adjacent Region to resolve any issues that might hinder interoperability or reduce any benefit to public safety communications.

## 6. System Design/Efficiency Requirements

### 6.1 Interference Protection

The frequency allotment list in Missouri's counties result from the fact that the original frequency sort did not anticipate high site system development that placed a priority on few sites all operating at high ground elevations providing weak signal strength at the edge of a jurisdiction's coverage area. Rather, the sort utilized contours to maximize frequency re-use across the country. This is based on an assumption that systems will be engineered on an interference-limited basis, not a noise floor-limited basis. Agencies are expected to design their systems for maximum signal levels within their coverage area and minimum levels in the coverage area of other co-channel users. Quality system engineering, the use of directional antennae and the advocacy of multi-agency/multi-discipline systems that promote interoperability can accomplish this goal. A jurisdiction's coverage area is normally the geographical boundaries of the Agency(s) served plus a three to five mile area beyond.

Systems should be designed for minimum signal strength of 40 dBμ in the system coverage area while minimizing signal power out of the coverage area. TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dBμ, or greater, signal in all systems coverage areas. This may require patterned antennas and extra sites compared to a design that assumes noise limited coverage. Region 24 complies with National Coordination Committee recommendations listed in Appendix K of the Regional Planning Committee Guidelines published by the National Coordination Committee (NCC).

### 6.2 Spectrum Efficiency Standards

Initial allotments will be made on the basis of 25 kHz channels. To maximize spectrum utilization, prudent engineering practices and receivers of the highest quality must be used in all systems. Given a choice of radios to choose from in a given technology family, agencies should use the units with the best specifications. This plan will not protect agencies from interference if their systems are under-constructed (ie; areas with the established service area having minimum signal strength below 40 dBu), or the systems utilize low quality receivers. The applicants implementation of prudent engineering practices will be encouraged by the Regional Planning Committee at all times.

It is the eventual goal of the FCC and the public safety community for radio equipment to meet the requirement of one voice channel per 6.25 KHz of spectrum. When applying for channels within Region 24, the applicants should acknowledge the deadline for converting all equipment to 6.25 kHz or 6.25 kHz equivalent technology is 12/31/2016. For narrowband mobile data requests, one mobile data channel will consist of two (2) 6.25 KHz channels/one (1) 12.5 KHz channel. Narrowband 6.25 KHz channels can be aggregated for data use to a maximum bandwidth of 25 KHz. As 6.25 KHz migration evolves, an agency that creates any "orphaned" 6.25 KHz channels should realize that these channels would be allocated to nearby agencies requesting channels to maintain consistent grouping and utilization of 25 KHz blocks within the region. (See Section 6.3)

Region 24 encourages small agencies to partner with other agencies in multi-agency or regional systems as they promote spectrum efficiency and both small and large agency capacity needs can be met. Loading criteria can also be achieved in multi-agency systems that will allow greater throughput for all agencies involved than that which could be achieved individually.

### *6.3 Orphaned Channels*

The narrowband pool allotments with Region 24 will have a channel bandwidth of 25 kHz. These 25 kHz allotments have been characterized as “Technology Neutral” and flexible enough to accommodate multiple technologies utilizing multiple bandwidths. If agencies choose a technology that requires less than 25 kHz channel bandwidth for their system, there is the potential for residual, “orphaned channels” of 6.25 kHz or 12.5 kHz bandwidth immediately adjacent to the assigned channel within a given county area.

An orphan channel may be used at another location within the county area where it was originally approved, if it meets co- and adjacent channel interference criteria. Region 24 will utilize “**county areas**” as guidelines for channel implementation with the area of Region 24. The definition of “**county area**” in this plan is the geographical/political boundaries of a given county, plus a distance of up to 15 miles outside of the county.

If the channel, or a portion of a channel, is being moved into a “county area” that is within 30 miles of an adjacent region, Region 24 will receive concurrence from the affected region. By extending the “county area” by a designated distance, it is anticipated this will increase the possibility that orphaned channel remainders will still be able to be utilized within the “county area”, and reduce the potential for channel remainders to be forced to lay dormant and used with a county channel allotment. These movements will be documented on the National Public Safety Telecommunications Council CAPRAD database.

If the “orphaned channel” remainder does not meet co-channel and adjacent channel interference criteria by moving it within the “county area” as listed above, and it is determined by the region that the “orphaned channel” cannot be utilized in the region without exceeding the distance described in the “county area” listed above, Region 24 will submit a plan amendment to the FCC to repack the channel to a location where its potential use will maintain maximum spectral efficiency. This FCC plan amendment will require affected region concurrence.

When in the best interest of public safety communications and efficient spectrum use within the Region, the Region 24 Regional Planning Committee shall have the authority to move orphan channel allotments, and/or co-/adjacent-channel allotments affected by the movement of orphan channels, within its “county areas”, which are defined above. This is to retain spectrum efficiency and/or minimize co-channel or adjacent channel interference between existing allotments within the region utilizing disparate bandwidths and technologies.

## **6.4 System Implementation**

TV station KSMO, located in Kansas City, Missouri utilizes analog TV channel 62. Channel 62 is adjacent to 700 MHz public safety allocations and the frequency sort in the Kansas City area of Region 24 will include channels that can co-exist with TV channel 62 and channels that cannot to prepare for implementation when the KSMO has left the band. The Region 24 Regional Planning Committee will utilize NCC Implementation Subcommittee documentation titled **Appendix L “DTV Transition”** that will provide the criteria which will be used, per FCC rules, to protect existing TV stations from land mobile use on 700 MHz public safety channels. All other areas in Region 24 (State of Missouri) are capable of immediately implementing systems using any 700 MHz public safety channels. With no restrictions in implementation due to incumbent co-channel broadcasters in the region, implementation of systems will adhere to guidelines in FCC rule 90.529 (b) and (c). An Agency may file a request with the Regional Chairperson for an extension of time to implement. The request should include all details describing why the agency has not implemented and a new implementation schedule. If necessary, the Regional Chairperson will call a special meeting to determine if the allotment should be extended or if the agency should reapply to the committee for another allotment.

## **7. Interoperability Channels**

### **7.1 Introduction**

The ability for agencies to effectively respond to mutual aid requests directly depends on their ability to communicate with each other. Missouri is subject to many natural disasters and contains regions and facilities, which may be susceptible to a man-made disaster or weapons of mass destruction attack. Mutual aid should be encouraged among agencies. This Plan seeks to facilitate the communications necessary for effective mutual aid.

The State of Missouri will administer the Missouri Statewide Interoperability Executive Committee; and the Missouri Statewide Interoperability Executive Committee (SIEC) under National Coordination Committee’s (NCC) guidelines will administer the 700 MHz interoperability channels. The Region 24 700 MHz Regional Planning Committee will work with the Missouri State Interoperability Executive Committee and three (3) members of the Region 24 700 MHz Regional Planning Committee will participate in the Missouri State Interoperability Executive Committee (SIEC) representing Region 24. If at any time the State SIEC is unable to function in the role of administering the interoperability channels in the 700 MHz band, then this committee will assume this role and notify the FCC in writing of the change in administrative duties. See the NCC Implementation Subcommittees **Table of Interoperability Channels in Appendix “E”**

### **7.2 Tactical Channels**

Due to the immediate availability of 700 MHz public safety channels in Missouri, Region 24 will not set aside additional channels for interoperability use within the region. It is anticipated the sixty-four FCC designated interoperability channels (6.25 KHz) will be sufficient to provide interoperability (voice and data) within Region 24.



All mobile and portable units operating under this Plan and utilizing 700 MHz channels must be programmed with the minimum number of channels called for either in NCC guidelines or as the Missouri State interoperability Executive Committee specifies. The channel display in these radios will be in accordance with the NCC guidelines that have common alphanumeric nomenclature to avoid any misinterpretation of use within Region 24. The Missouri SIEC is the final authority, in Missouri, on the interpretation of the distribution of the 700 MHz interoperability channels.

### **7.3 Deployable Systems**

In this Plan, Region 24 strongly supports use of deployable systems, both conventional and trunked. Deployable systems are prepackaged systems that can deploy by ground or air to an incident to provide additional coverage and capacity on designated 700 MHz interoperability channels and/or agency specific General Use Channels. This will minimize the expense of installing extensive fixed infrastructure in areas while still providing mission critical functionalities as the Region recognizes the difficulty of providing complete coverage in all areas due to financial, demographic and geographical constraints.

Agencies should have conventional deployable systems capable of being tuned to any of the FCC designated/NCC recommended interoperability tactical channels. Those agencies that are part of a multi-agency trunked system and commonly provide mutual aid to each other are encouraged to have trunked deployable systems that operate on the tactical channels designated by the FCC for this use. The SIEC will develop the operational details for deploying these systems.

It is expected that the tactical channels set aside for trunked operation will be heavily used by deployable systems. Therefore, the tactical channels cannot be assigned to augment general use trunked systems.

### **7.4 Monitoring of Calling Channels**

700 MHz General Use channel licensees will be responsible for monitoring interoperable calling channels. The SIEC will develop operational guidelines for this function. **Appendix E** will include NCC documents that display required Interoperability guidelines.

## **8. Future Planning**

The CAPRAD pre-coordination database has developed channel allotments in each county area within Missouri, including the City of St Louis using criteria such as current population, 2010 Census data, height above average terrain (HAAT) and public safety use curves generated by the Public Safety Wireless Advisory Committee (PSWAC) to provide spectrally efficient frequency allotments.

### ***8.1 Inter-Regional Dispute Resolution Process***

In the event that a dispute arises between Region 24 and an adjacent Region or Regions, regarding spectrum allocations or implementation, that cannot be resolved within 60 days, the parties to the dispute will request a hearing by the National Regional Planning Oversight Committee. **See Appendix H for details and Inter-Regional Dispute Resolution Agreements signed by adjacent Regions 4,13,15,16,17,26,34, and 39.**

## **9.0 Certification**

I hereby certify that all planning committee meetings, including subcommittee or executive committee meetings were open to the public. A summary of the deliberations of the Committee pursuant to adopting this Plan can be found in Appendix D, in the minutes of the January 14, 2003 Regional Planning meeting.

Stephen T. Devine

Chairman, Region 24

## **Appendices**

<b>Appendix A</b>	<b>Bylaws</b>
<b>Appendix B</b>	<b>Region 24 Members, Agencies, Contact Information and Voting Status</b>
<b>Appendix C</b>	<b>Region 24 (Missouri) Counties</b>
<b>Appendix D</b>	<b>List of Meetings, summaries of minutes, agendas</b>
<b>Appendix E</b>	<b>700 MHz Interoperability channel nomenclature</b>
<b>Appendix F</b>	<b>NCC 700 MHz Pre-Assignment Rules/Recommendations</b>
<b>Appendix G</b>	<b>Region 24 Channel allotments</b>
<b>Appendix H</b>	<b>Inter Regional Dispute Resolution Agreement</b>
<b>Appendix I</b>	<b>DTV Protection and Incumbency</b>
<b>Appendix J</b>	<b>Meeting Announcements</b>

## **Appendix A**

### **Bylaws of the 700 MHz Regional Planning Committee- Region 24 (State of Missouri)**

**Revised September 16, 2002  
BYLAWS OF REGION 24**

#### **NAME & PURPOSE**

- 1.1 Name and purpose.** The name of this Region shall be Region 24-Regional Planning Committee. Its primary purpose is to foster and promote cooperation, planning, development and evolution of Regional Plans and the implementation of these plans in the 700 MHz Public Safety Band within the State of Missouri.

#### **MEMBERS**

For purposes of this document, the term “member,” unless otherwise specified, refers to both voting and non-voting members.

- 2.1 Numbers, Election and Qualification.** The Regional 24 700 MHz Regional Planning Committee shall have two classes of members, “voting members” and “non-voting members.” New members may be added at annual, special, or regular meetings. Tools to promote participation and involvement in the Region 24 700 MHz Committee in the form of a list-serve and/or regional newsletters will be researched by the committee. The newsletter may be distributed both electronically and in print form.

**Voting Members.** Voting members shall consist of one (1) representative from any single agency engaged in public safety eligible to hold a license under 47 CFR 90.20, 47 CFR 90.523 or 47 CFR 2.103. Except that a single agency shall be allowed no more than one vote for each distinct eligibility category (e.g. police, fire, EMS, highway) within the agency’s organization or political jurisdiction. In voting on any issue, the individual must identify himself/herself and the agency and eligibility category in which he or she represents. **Voting members may not vote on issues involving their entity. To become a member of Region 24 700 MHz Regional**

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**Planning Committee to represent their agency, a representative simply has to attend a meeting. See attendance and voting rights procedures below.**

**Non-Voting Members.** Non-voting members are all other non-public safety personnel interested in furthering the goals of public safety communications.

**2.2 Tenure.** In general, each member shall hold MEMBERSHIP from the date of acceptance until resignation or removal.

**2.3 Powers and Rights.** In addition to such powers and rights as are vested in them by law, or these bylaws, the members shall have such other powers and rights as the membership may determine.

**2.4 Suspensions and Removal.** A representative may be suspended or removed with cause by vote of a majority of members after reasonable notice and opportunity to be heard. Region 24 will hold at least two (2) meetings in a calendar year. To retain consistent voting rights, members should attend one (1) meeting in a 24-month period. **After the date of approval of this Regional Plan by the Federal Communications Commission, all previous attendees are voting members, with the exception of non-voting commercial members. After the acceptance of this Regional Plan, voting members that do not attend one meeting in a 24-month period that starts on the date of plan acceptance, will lose Region 24 voting rights for either a 6 month period or when the member attends the next Regional Planning Committee meeting, whichever comes first. Attending a meeting is all that is required to immediately reinstate voting members voting rights.** The loss of voting rights does not remove a member from active status; it simply requires attendance at a meeting (Special or Regular) to reinstate voting privileges. The voting limitations of an individual have no effect on the voting ability of a public safety entity. The public safety entity reserves the right to send another representative to vote on issues regarding 700 MHz implementation, or send the original voting representative to the next special or regular meeting.

A vote of the committee is the final determining factor regarding removal a member from Region 24. A period of 6 months from the first day of removal is required before a removed member is eligible for reinstatement for membership in the Regional Planning Committee.

**2.5 Resignation.** A member may resign by delivering written resignation to the chairman, vice-chairman, treasurer or secretary of the Regional Committee or to a meeting of the members. A resigning member is eligible for reinstatement to the Regional Planning Committee after a period of six months has lapsed, beginning on the first day of resignation.

**2.6 Meetings.** After Regional Plan approval, the Region 24 700 MHz Planning Committee will meet no less than two (2) times every twelve (12) months. **One meeting in each calendar year may be held in Jefferson City, Missouri. This is centrally located within Region 24 and will provide the maximum opportunity for regional participation. The remaining meeting(s) are to be located in a different city or town within the Region to attract and promote involvement in the committee decided on by members of the committee.** Committee meetings will not be held on holidays or weekend days, unless called by the Region 24 Chairperson. At any time and when deemed necessary by the Chairperson, an additional

meeting of the Region 24 Regional Planning Committee may be called. Video and/or Audio Teleconferencing may be conducted at meetings to include as many people as possible in the 700 MHz allocation process. The use of electronic E-mail and the Region 24 list-servers ([RPC24@yahoogroups.com](mailto:RPC24@yahoogroups.com), [region24siec@yahoogroups.com](mailto:region24siec@yahoogroups.com) and [NPSPARegion24@yahoogrouse.com](mailto:NPSPARegion24@yahoogrouse.com)) will be utilized by members and officers of Region 24 as needed to convey regional issues at hand. **It should be noted the use of E-mail and/or video-audio teleconferencing does not remove the voting eligibility requirement of the member to attend at least one (1) of the Region 24 annual meetings.**

**2.7 Special Meetings.** The Chairperson has the authority to call a meeting of the Regional Planning Committee when he deems it in the best interest of the Region and will provide notice of the special meeting to existing members of the Region (and the public) at least 5 days prior to the meeting. Special meetings of the members may be held at any time and at any place within the Regional Committee area. Special meetings of the members may be called by the chairman or by the vice-chairman, or in case of death, absence, incapacity, by any other officer or, upon written application of two or more members.

**2.8 Call and Notice.**

A. Semi Annual meetings. Reasonable notice of the time and place of scheduled meetings of the members, not being less than 60 days, shall be given to each member. Such notice may specify the purposes of a meeting, but will specify meeting content if required by law or these bylaws or unless there is to be considered at the meeting (i) amendments to these bylaws or (ii) removal or suspension of a member who is an officer. Announcements of meetings, stating the time and place where the meeting is to be held, may be published in newspapers and land mobile radio periodicals. In addition, a press release may be issued, urging parties interested in public safety communications to attend. Region 24 is will notify the Federal Communications Commission, Chief of the Wireless Telecommunications Bureau, when a meeting time and place has been established for the Region 24 700 MHz Regional Planning Committee.

B. **Reasonable and sufficient notice.** Except as otherwise expressly provided, it shall be reasonable and sufficient notice to a member to send notice by mail at least five days or by e-mail/facsimile at least three days before any special meetings, addressed to such member at his or her usual or last known business address, or, to give notice to such member in person or by telephone at least three days before the meeting.

**2.9 Quorum.** At any meeting of the members, a majority of the officers and a minimum of at least three (3) voting members shall constitute a quorum. Any meeting may be adjourned to such date or dates not more than ninety days after the first session of the meeting by a majority of the votes cast upon the question, whether or not a quorum is present, and the meeting may be held as adjourned without further notice.

**2.10 Action by Vote.** Each voting member, representing a particular agency (one vote per agency) shall have one vote; non-voting members have no voting rights. When a quorum is present at any meeting, a majority of the votes properly cast by voting members present shall decide any question, including election to any office, unless otherwise provided by law or these bylaws.

**2.11 Action by Writing.** Any action required or permitted to be taken at any meeting of the members may be taken without a meeting if all members entitled to vote on the matter consent

to the action in writing and the written consents are filed with the records of the meetings of the members. **Such consents shall be treated for all purposes as a vote at a meeting.**

- 2.12 Proxies.** Voting members may vote either in person or by written proxy dated not more than one month before the meeting named therein, which proxies shall be filed before being noted with the secretary or other person responsible for recording the proceedings of the meeting. **A RPC member present via teleconference (audio or video) shall have voting status parallel to a member present at the meeting. If the facility is unable to accommodate teleconferencing (audio or video), or for any other reason teleconferencing cannot be accommodated in the meeting place, it is the responsibility of the member to attend the meeting in person or to vote by written proxy to have full voting rights.** Unless otherwise specifically limited by their terms, such proxies shall entitle the holders thereof to vote at any adjournment of the meeting for which the proxy exists and the proxy shall terminate after the final adjournment of such meeting.
- 2.13 Voting on One's Own Application.** **At no time can a voting member vote on his/her application.**
- 2.14 Special Interest Voting.** A voting member **cannot** have a commercial interest in any of his/her Region and/or adjacent Region's application(s) on which he/she is reviewing, approving and/or voting.

## **OFFICERS AND AGENTS**

- 3.1 Number and qualification.** The officers of the Region 24 700 MHz Regional Planning Committee shall consist of a chairman, a vice-chairman and a secretary. All officers must be voting members of the Regional Committee.
- 3.2 Election.** The officers shall be elected by the voting members at their first meeting and, thereafter, at a meeting determined by the membership. The terms of the officers in the Region 24 700 MHz RPC will be for two (2) years. In order to allow for consistency in the plan creation and initialization process, the terms of elected officers will begin on the date of the FCC's approval of the Region 24 plan.
- 3.3 Tenure.** The officers shall each hold office until the biannual election meeting of the members held within two years from the adoption of these bylaws, or until their successor, if any, is chosen, or in each case until he or she sooner dies, resigns, is removed or becomes disqualified.
- 3.4 Chairman and Vice Chairman.** The chairman shall be the chief executive officer of the Regional Committee and, subject to the control of the voting members, shall have general charge and supervision of the affairs of the Regional Committee. The chairman shall preside at all meetings of the Regional Committee. The Vice Chairman, if any, shall have such duties and powers, as the voting members shall determine. The Vice-Chairman shall have and may exercise all the powers and duties of the chairman during the absence of the chairman or in the event of his or her inability to act.
- 3.5 Treasurer.** The treasurer shall be the chief financial officer and the chief accounting officer of the Regional Committee. The treasurer shall be in charge of its financial affairs, funds, and valuable papers and shall keep full and accurate records thereof. **In the absence of a treasurer within the Region 24 700 MHz Planning Committee, the Chairperson shall assign Region 24 treasurer duties as deemed necessary.**
- 3.6 Secretary.** The secretary shall record and maintain records of all proceedings of the members in a file or series of files kept for that purpose, which file or files shall be kept within the Region

and shall be open at all reasonable times to the inspection of any member. Such file or files shall also contain records of all meetings and the original, or attested copies, of bylaws and names of all members and the address (including e-mail address, if available) of each. If the secretary is absent from any meeting of members, a temporary secretary chosen at the meeting shall exercise the duties of the secretary at the meeting. In the absence of a secretary within the Region 24 700 MHz Planning Committee, the Chairperson shall assign Region 24 Secretary duties as deemed necessary.

**3.7 Suspensions or Removal.** An officer of the Region 24 Regional Planning Committee may be suspended with cause by vote of a majority of the voting members in attendance.

**3.8 Resignation.** An officer may resign by delivering his or her written resignation to the chairman, vice-chairman, treasurer, or secretary of the Regional Committee. Such resignation shall be effective upon receipt (unless specified to be effective at some other time), and acceptance thereof shall not be necessary to make it effective unless it so states.

**3.9 Vacancies.** If the office of any officer becomes vacant, the voting members may elect a successor. Each such successor shall hold office for the remainder terms, and in the case of the chairman, vice chairman, treasurer and clerk until his or her successor is elected and qualified, or in each case until he or she sooner dies, resigns, is removed or become disqualified.

## **AMENDMENTS**

These bylaws may be altered, amended or repealed in whole or in part by vote. The voting members may by a two-thirds vote of a quorum, alter, amend, or repeal any bylaws adopted by the Regional Committee members or otherwise adopt, alter, amend or repeal any provision which FCC regulation or these bylaws requires action by the voting members.

## **DISSOLUTION**

This Regional Committee may be dissolved by the consent of two-thirds plus one of an assembled quorum of the membership at a special meeting called for such purpose. The FCC shall be notified.

## **RULES OF PROCEDURES**

The Conduct of Regional Meetings including without limitation, debate and voting, shall be governed by Robert's Rules of Order, newly revised 1990 edition, ninth edition, Sarah Corbin Robert, Henry M. Robert III, and William J. Evans.



## **Appendix B**

### **Region 24 member list and Contact information**

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## **Meeting attendees by meeting**

June 7, 2000 Jefferson City, Missouri

### **Attendees**

Stephen T. Devine, Patrol Frequency Coordinator, Missouri State Highway Patrol, 800 MHz  
NPSPAC Chairperson  
Michael Redman, Communications Coordinator, St Louis County Police  
Ron Shook, Emergency Management Agency, Greene County Missouri  
William Cade, Jasper County 911, Jasper County Missouri  
Chris Teel, Springfield/Greene County 911, Springfield, Missouri  
J.R. Webb, Greene County Missouri Sheriff's Office  
James C. Biggerstaff, Director of Radio, Missouri State Highway Patrol  
James A. Lundsted, Chief Projects Engineer, Missouri State Highway Patrol  
Charles Gastler, Communications Manager, St Louis Metropolitan Police Department

October 5, 2000 Jefferson City, Missouri

Ron Shook, Convenor, Greene County Emergency Management  
Stephen T. Devine, (Elected Chairperson at meeting)  
J.R. Webb, Greene County Sheriff's Office  
Chuck Collins, Springfield/Greene County Emergency Communications Department  
Charles Gastler, St Louis Metropolitan Police Department  
James C. Biggerstaff, Director of Radio, Missouri State Highway Patrol  
Michael Redman, Communications Coordinator, St Louis police  
Steve Makky Sr. St Charles County Government  
William Cade, Jasper County 911, Jasper County Missouri  
Chris Teel, Springfield/Greene County 911  
James A. Lundsted, Chief Projects Engineer, Missouri State Highway Patrol

January 11, 2001(St Louis County, Missouri)

Stephen Devine, Missouri State Highway Patrol-Chairperson  
Jonathan Chaney, Missouri State Highway Patrol-St Louis  
Scott Bigham, Missouri State Highway Patrol-St Louis  
Rodney Zerr, St Charles County Emergency Management  
Steven Makky Sr. St Charles County Emergency Management  
Tom Dollus, Missouri Department of Transportation  
Tim Bechler, Central St Louis County Fire Alarm/911  
Roger Strobe, Chief Projects Engineer, Missouri State Highway Patrol  
Richard Stump, Communications Officer, Missouri State Emergency Management Agency  
Dan Rowden, Director, St Charles County Department of Dispatch  
Sgt. Mike Clinnard, St Peters Police Department  
**David Wunderlin, Radio Communications Specialists, Joplin, Missouri**  
William Cade, Jasper County 911, Jasper County, Missouri  
**Terry Buhr, Motorola**  
**Jon Martin, Motorola**  
**Keith Kemmerline, Motorola**  
Drew Juden, City of Sikeston, Missouri  
Michael Redman, Communications Coordinator, St Louis County Police Department  
William Bauer, North St Louis County Fire Alarm,  
**Tom Kearns, Com-Net Ericsson**  
Tom Ward, State of Illinois  
Kent Forde, Valle Ambulance District, Jefferson County, Missouri  
Lt William Harlan, St Louis County Police  
Charles Gastler, St Louis Metropolitan Police Department

March 29, 2001 (Springfield, Missouri)

Ron Shook, Greene Co. EMA  
J.R. Webb, Greene Co. Sheriff's Dep't.  
Stephen T. Devine, Chairperson, Missouri State Highway Patrol  
**Pete Albera, Motorola C&E, Inc.**  
Bill Cade, Jasper County E9-1-1  
Sharon Murray, Republic Police Department  
Steve Sloan, Missouri State Emergency Management Agency  
Steve Makky, Sr., St. Charles County Emergency Management  
Mike Turner, Central County E9-1-1 (St. Louis Co.)

June 28, 2001 Jefferson City, Missouri

Stephen T. Devine, Chairperson, Missouri State Highway Patrol

Charles Gastler, St Louis Metropolitan Police Department

**Tom Kearns, MA/COM Wireless**

**Kurt Rellagert, Motorola**

**Pete Albera, Motorola**

J.R. Webb, Greene County Sheriff's Department, Greene County, Missouri

Ron Shook, Greene County Emergency Management

James C. Biggerstaff, Director of Radio, Missouri State Highway Patrol

September 18, 2001, Branson, Missouri

Stephen T. Devine - MSHP - RPC Chairperson/ Chair Implementation Subcommittee

Steve Makky, Sr. - SCCG/ EMA - RPC Secretary/ Chair Technology Subcommittee

Mike Turner - Central [St. Louis] County E9-1-1

**Terry Buhr - Motorola**

Charles Gastler - St. Louis Metropolitan Police Department

**Tom Kearns - M/A Com Wireless**

J.R. Webb - Greene Co. Sheriff's Office

Roger Strobe - Missouri State Highway Patrol

**Peter Albera - Motorola**

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Chuck Zang - Kansas City, Mo. Fire Department

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January 10, 2002 Jefferson City, Missouri

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April 11, 2002 Kansas City, Missouri

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## **Appendix C**

### **List of counties areas within Region 24:**

Note: The City of St Louis is the only city in the State of Missouri that is not located within a Missouri county and it has an individual allotment. **Pool channel allotments are allotted by “County Areas” in Region 24. County areas and their definitions are listed in Section 6.3**

Adair  
Andrew

Atchison  
Audrain  
Barry  
Barton  
Bates  
Benton  
Bollinger  
Boone  
Buchanan  
Butler  
Caldwell  
Callaway  
Camden  
Cape Girardeau  
Carroll  
Carter  
Cass  
Cedar  
Chariton  
Christian  
Clark  
Clay  
Clinton  
Cole  
Cooper  
Crawford  
Dade  
Dallas  
Daviess  
DeKalb  
Dent  
Douglas  
Dunklin  
Franklin  
Gasconade  
Gentry  
Greene  
Grundy  
Harrison  
Henry  
Hickory  
Holt  
Howard  
Howell  
Iron  
Jackson

Jasper  
Jefferson  
Johnson  
Knox  
Laclede  
Lafayette  
Lawrence  
Lewis  
Lincoln  
Linn  
Livingston  
Macon  
Madison  
Maries  
Marion  
McDonald  
Mercer  
Miller  
Mississippi  
Moniteau  
Monroe  
Montgomery  
Morgan  
New Madrid  
Newton  
Nodaway  
Oregon  
Osage  
Ozark  
Pemiscot  
Perry  
Pettis  
Phelps  
Pike  
Platte  
Polk  
Pulaski  
Putnam  
Ralls  
Randolph  
Ray  
Reynolds  
Ripley  
Saline  
Schuyler  
Scotland

Scott  
Shannon  
Shelby  
St. Charles  
St. Louis  
St. Francois  
St. Clair  
Ste. Genevieve  
Stoddard  
Stone  
Sullivan  
Taney  
Texas  
Vernon  
Warren  
Washington  
Wayne  
Webster  
Worth  
Wright

## **Appendix D**

Meeting attendance, agendas and other events where 700MHz information was disseminated.

June 7, 2000      800 MHz NPSPAC Regional Planning Committee meeting in Jefferson City, Missouri

Called by Acting Chairperson of 800 MHz NPSPAC Region Stephen Devine, who is standing in for Mr. John Gerke, as he withdrew from the 800 MHz

Chair due to ill health, elected Chairperson of 800 MHz Committee. FCC Wireless Bureau notified.

Meeting topics included discussion of Region 24's status, the appointment of a new Regional Chairperson and a review of national planning requirements. A discussion of the upcoming 700 MHz public safety spectrum was introduced and the Chairperson advised the committee he would be appointing a convener. Letter from Chairperson Stephen T. Devine to Chief of the Wireless Telecommunications Bureau dated June 12, 2000 prematurely stated that Stephen Devine was named convener of the 700 MHz Region 24 Planning Committee. This did not allow for enough notice between meeting announcement and initial meeting per FCC issued guidelines.

July 1, 2000

800 MHz Region 24 Chairperson Stephen T. Devine appoints Ron Shook of Emergency Management, Greene County, Missouri Convener of the 700 MHz Regional Planning Committee and sets first meeting date for October 5, thereby allowing 90 days notice of first meeting. FCC Wireless Bureau notified of the appointment of Convener in letter to Chief dated October 6, 2000.

Convener Ron Shook, Greene County, Missouri Emergency Management  
940 Booneville Road, Springfield, Missouri 65802  
Work phone 417 829 6209  
E-mail rshook@greencountymo.org

August 28, 2000

Missouri State Highway Patrol issues Press release for meeting dated August 28, 2000.

APCO notified of meeting announcement

FCC Wireless Bureau notified of announcement

Missouri State Highway Patrol issues Statewide teletype message announcing 700 MHz committee formation on October 5, 2000.

October 5, 2000

700 MHz Region 24 Planning Committee convened by Ron Shook of Greene County Emergency Management. 700 MHz Meeting began at 1145 hrs CDT. Stephen T. Devine, Missouri State Highway Patrol Frequency Coordinator was elected Chairperson of the 700 MHz Region 24 Planning Committee.

The list of attendees were as follows:

**Stephen T. Devine**, Chairperson Region 24 800 MHz and Frequency Coordinator-Missouri State Highway Patrol

**Michael Redman**, St Louis County Police

**Ron Shook**, Convener, Greene County Emergency Management Agency

**William Cade**, Jasper County 911

**Chris Teel**, Springfield/Greene County 911  
**J.R. Webb**, Greene County Sheriff's Office  
**James C. Biggerstaff**, Director of Radio, Missouri State Highway Patrol  
**James A. Lundsted**, Chief Projects Engineer, Missouri State Highway Patrol  
**Charles A. Gastler**-Communications-St Louis Metropolitan Police  
**Steve Makky Sr.** St Charles County Emergency Management

Meeting topics included election of 700 MHz Chairperson and approaching NCC to ask if meeting in the Midwest (St Louis or Kansas City, preferably)  
See letter to NCC DFO Michael Wilhelm dated June 12, 2000.

January 11, 2001      700 MHz Region 24 meeting schedule for January 11, 2001 in St Louis County Missouri at the St Louis County Emergency Operations Center, 14847 Olive Street Road, Chesterfield, Missouri beginning called to order at 11:30 by Chairperson Devine.

Missouri State Highway Patrol issues news release indicating date, time and meeting agenda of January 11 meeting to news media throughout Missouri and surrounding areas dated November 7, 2000. Copies of news release faxed to all APCO Frequency Coordinators in Missouri's eight (8) adjacent states on December 13, 2000.

MRT, Radio Resource magazine and the APCO magazine are all notified of the meeting date time and agenda. FCC Wireless Bureau also notified. A list of fire agencies within the St Louis area is obtained and 70 copies of the MSHP news release are faxed to the fire agencies making them aware of the meeting on November 14, 2000

A letter is sent to Region 13 (Southern Illinois) convener T.J. Ward to invite his participation in the meeting as they have begun the convening process and have areas of interest in southern Illinois adjacent to the area of the meeting. Meeting attendee list on file.

Meeting topics include updating NCC information, presentation on 700 MHz band and frequency allotments (Interoperability, State license and General Use) and Regional Plan requirements.

February 2-3, 2001      700 MHz Chairperson Stephen T. Devine gives two presentations at the Missouri State Emergency Management Agency Annual Communications Conference at the Inn at the Grand Glaize Hotel in Lake Ozark, Missouri. Information regarding the 700 MHz Regional Planning Committee in Region 24 was discussed and attendees were invited to the meeting in Springfield, Missouri set for March 29, 2001 and to participate in Region 24 700 MHz meetings.

March 29, 2001      700 MHz Regional Planning Committee Meeting convenes on March 29 in Springfield, Missouri at the Greene County Emergency Management Agency. Attendee list is on file.

Missouri State Highway Patrol issues Tele-type message statewide announced meeting date, time, location and agenda on March 15, 2001.

Meeting topics include sub-committee formation (Interoperability, Implementation and Technology) and Election of Region 24 Committee Secretary.

Subcommittee Chairpersons elected:  
**Technology** – Steve Makky, Sr. St Charles County Emergency Management  
**Interoperability** – William Cade, Jasper County 911 (Ron Shook, Greene County Emergency Management)  
**Implementation** – Stephen T. Devine, Missouri State Highway Patrol

Email sent to FCC Wireless Bureau and Radio Resource, MRT and APCO Magazine with meeting announcement including date, location and time of meeting.

FCC issues Public Notice (DA 01-343) on Region 24 meeting set for March 29, 2001 on February 13, 2001.

April 16, 2001      Region 24 Chairperson Stephen T. Devine attends the Missouri State Emergency Management Agency Annual Conference at Lake Ozark and attends Region 24 display table providing information on the 700 MHz planning committee that is formed within Missouri. A banner is used to advertise the Committee and questions from conference attendees are answered. The hours of the display table are 8 am through 2 pm.

June 28, 2001      Region 24 700 MHz Regional Planning Committee meeting is announced for June 28, 2001 at the Missouri State Highway Patrol Headquarters located at 1510 East Elm, Jefferson City, Missouri 65101. Attendee list is on file. Meeting convened at 12:39 PM. Meeting topics included discussed were several documents initiated by the NCC that are before the FCC, particularly the NPSTC request to not allow commercial wireless providers to use high powered base stations in areas of commercial spectrum adjacent to public safety mobile users.

Missouri State Highway Patrol issues a news release announcing date, time and location June 28, 2001 Region 24 700 MHz meeting.

FCC Wireless Bureau issues Public Notice (DA 01-1043) for meeting.

Radio Resource, MRT magazine and APCO magazine post meeting information for June 28 meeting after receiving E-mail from Chairperson.

Other meeting topics include:

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NCC standing documents,  
Progress reports on NCC status  
Region 24 planned use of the NPSTC pre-coordination database  
Interference issues  
Coordination licensing  
Regional funding

July 27, 2001

The list-serve for Region 24 is [rpc24@yahoogroups.com](mailto:rpc24@yahoogroups.com)  
It is a forum for members and other interested parties to exchange 700 MHz public safety information along with updated NCC information. The National Public safety Telecommunications Council created the website for the Region.

September 18, 2001

NPSPAC Region 24 held meetings at the Chateau on the Lake Resort in Branson, Missouri, which is the site of the Missouri APCO Chapter's annual conference. 700 MHz meeting topics included NCC progress updates, information from APCO Intl. National Conference in Salt Lake City which introduced a packing plan for General Use spectrum to be implemented on The NPSTC CAPRAD database.

The packing program establishes an average terrain within a county (or any geographic area) and then determines predicted coverage based on the 40-dBu contours. For co co-channel use, the 40-dBu contours can touch, but not overlap the 5-dBu contour of the co channel "victim" site. County boundaries will be used for coverage determination and terrain will be used for interference contours. This new packing technology is estimated to have a channel gain of five times that of the packing method employed for 800 MHz NPSPAC.

The topic of Canada's movement onto 700 MHz and its effect on states near Line A was discussed as well. The State of New York is leading an effort to intervene and negotiate with the Canadian government. Other issues discussed.

The Missouri State Highway Patrol issued a press release throughout Missouri on this 700 MHz Regional Planning Committee meeting on August 2, 2001

They also issued an announcement on the State Law Enforcement Teletype Network announcing the meeting and inviting all interested parties. Notices regarding this meeting were also posted in Radio Resource magazine, MRT magazine and the APCO Intl. magazine.

The Federal Communications Commissions Wireless Telecommunications Bureau issued a Public Notice (DA 01-1608) on July 6, 2001 announcing this

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meeting.

Minutes of meeting are on file

Next meeting set for January 10, 2002

January 10, 2002

Region 24 700 MHz Regional Planning Committee meeting was held at the Missouri State Highway Patrol General Headquarters in Jefferson City, Missouri on January 10, 2002 and was called to order at 0927 hrs.

An E mail message announcing the meeting for January 10, 2002 was sent to the FCC's WTB on 092701 to the Wireless Telecommunications Bureau (WTB), along with the previously mentioned trade publications, however there was no Public Notice issued by the WTB. This could have been due to the September 11 attacks. Topics of the Region 24 700 MHz meeting are as follows:

Acceptance of Bylaws of the Region 24 700 MHz Regional Plan

Final Decisions on content of the Regional Plan

Development of criteria needed for applicant eligibility

Update on NCC progress and current status of 700 MHz in Missouri along with Broadcaster issues.

Updates on CAPRAD database being developed by National Public Safety Telecommunications Council. Minutes of meeting are on file.

Next meeting set for April 11, 2002 in Kansas City, Missouri

April 11, 2002

Region 24 700 MHz Committee meeting was held in Kansas City, Missouri at the Kansas City Police Department Communications Office. FCC Public Notice DA 02-278 issued February 7, 2002. The Meeting minutes are on file. A press release was issued by the State of Missouri indicating the date, time and location of the meeting on January 31, 2002. All major industry periodicals (Radio Resource Magazine, MFT Magazine and APCO-Public Safety Bulletin) were notified and posted the meeting announcement in their publications. Plan updates were discussed, as were anticipated channel allotment parameters for the CAPRAD database general Use channels. Also discussed were FCC designated Interoperability channels and how they would be implemented in the region.

The uncertainty of use for the interoperability data channels was a topic of discussion as was the future use of the 150 KHz channel aggregated data channels. Training for the CAPRAD database will be in June and Steve Makky of St Charles County Emergency Management, Chairman of Technical Region 24 Subcommittee and Stephen Devine, Region 24 Chairperson will attend.

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A discussion on the band plan and the location of the reserve channels adjacent to the designated interoperability channels needed for 25 KHz implementation ensued.

A short discussion of the Motorola Greenhouse project and adjacent TV channel 62 provided committee members an update on DTV transition.

Meeting adjourned with next meeting scheduled for

September 24, 2002 700 MHz Regional Committee meeting held at the State Emergency Management Agency at 10 am. Announcements were sent to Radio Resource Magazine, APCO Public Safety Magazine and MRT Magazine as well as the FCC's Wireless Bureau, announcing the meeting. The Missouri State Highway Patrol issued a news release to all the major news media in Missouri with details of the meeting including location, time and content.

There was a discussion on the 700 MHz allotment process and how it would allot channels to each individual county area. It was also decided that the Regional Planning Committee Writing Group would create an allotment for the committee to review while waiting for the NPSTC CAPRAD channel packing plan was completed.

Wideband data standards were also discussed and several committee members commented on NCC preliminary channel loading figures that would require 180 users per 50 KHz wideband data channel. These figures are preliminary and will probably be revised when better information is available.

A meeting was called for January 10, 2003 at 10 am in the State Emergency Management Agency. This meeting will be to review the Region 24 channel allotment from the CAPRAD/NPSTC packing plan and the packing plan created in by Region 24. A discussion on the benefits of each packing plan will be encouraged.

It is anticipated Regional Planning Committee members will take both plans to their respective regions for review and a second meeting, at the State Emergency Management Agency's Annual Communications Conference at the Tan Tara Resort on February 14, will be held. At this meeting, the Regional Plan will be reviewed in its entirety and the Regional Planning Committee will approve one of the channel allotment plans for Region 24.

January 14, 2003 The Region 24 Regional Planning Committee held a meeting on January 10, 2003 at 10 AM to review two potential channel packing plans for Region 24.

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The NYSTEC channel packing plan sponsored by the National Public Safety Telecommunications Council (NPSTC) was reviewed as was the packing plan created by members of the Region 24 Writing Group. A vote of the members present indicated the Regional Planning Committee overwhelmingly supported the packing plan developed by the Regional Planning Committee as it provided a greater number of channels in the metropolitan areas located within Region 24. The committee decided to vote on the plan they preferred to use in the Region 24 Plan, and voted (unanimously) to implement the Region 24 packing plan and the number of channels indicated on the internally developed plan. The members in attendance also voted in favor of including technical material, in accordance with NCC guidelines, in the final version of the Plan so applicants could review the Region's expectations with regard to expected service area coverage, system contours etc. It was decided at the January 10, 2003 meeting that the Region, under the direction of the Chairperson, should file the Region 24 700 MHz plan with the FCC under Docket 02-378, per the FCC's Public Notice DA 02-3497 dated 12-31-2002.

The FCC issued a public notice on this meeting, DA 02-3195 dated November 19, 2002.

The meeting was adjourned

April 22, 2003      Region 24 700 MHz Regional Planning Committee is again represented at the Missouri State Emergency Management Agency Annual Conference at the Lake of the Ozarks April 21-23, 2003. The Regional Chairperson was provided a table in the exhibit area and displayed channel plans, information regarding channel allotments and pamphlets supporting the 700 MHz process in Missouri.

July 1, 2003      Region 24 held a 700 MHz meeting at the State Emergency Management Agency facility in Jefferson City, Missouri on July 1, 2003. Items discussed were:

The approval process for acceptance of the regional plan by the FCC and what was the time frame involved. Chairperson Devine advised the committee on the process of approval, adjacent region concurrence and a time frame to expect before being able to file. The inter-regional dispute resolution form and the purpose for obtaining adjacent state concurrence was discussed and several questions were answered.

Chairperson Devine and Vice Chair Steve Makky discussed the CAPRAD database and its function in assisting regional planning committees in the 700 MHz process. The committee members in attendance had questions regarding the licensing process and channel allotments for their respective county. All information was provided to the satisfaction of the committee.

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Chairperson Devine announced that he would make the Committee aware via the [rpc24@yahogroups.com](mailto:rpc24@yahogroups.com) list-serve when the plan has been filed with the FCC.

- February 4, 2004      Region 24 Chairperson Steve Devine traveled to Little Rock Arkansas to attend the initial Region 4 (Arkansas) Regional Planning meeting. He provided information on Missouri's pending plan and how border issues with Region 4, as well as other bordering regions, will be worked out through the use of the CAPRAD channel packing sort. He also provided Region 4 attendees information on Missouri's wideband data sort of indicated that the sort offered a significant number of channels along Missouri's adjacent borders.
- March 29, 2004      FCC Wireless Telecommunications Bureau returns Region 24's plan for several reasons and require adjacent region concurrence to be obtained from all eight (8) adjacent states.
- April 8, 2004      Region 24 files a Petition for Reconsideration with the Wireless Telecommunications Bureau to reconsider the return of the Region 24 application. The main concern of Region 24 is the requirement of the adjacent region coordination with the six (6) adjacent regions Region24 submitted previously.
- October 2004      Region 24 Chairperson Stephen Devine speaks with FCC Wireless Telecommunications Bureau and clarifies what Region 24 needs to accomplish regarding its plan prior to re-filing.
- December 8 2004      Region 24 700 MHz meeting held at St Louis City Police Department 1 PM. The 700 MHz regional planning committee meeting was called to order at 1 PM. In the absence of RPC Secretary Steve Makky, Chairperson Steve Devine took meeting minutes. Discussions on the 700 MHz regional plan and the Missouri SIEC's role in the administration of the 700 MHz narrowband interoperability channels took place with the committee voting to support the Chairperson modifying and re-submitting the 700 MHz regional plan to the FCC. Discussions also took place on 4.9 GHz and the Chairperson asked the RPC members in attendance what they felt was the most appropriate was for the RPC to address 4.9 GHz regional planning. The group was brought up to date with the FCC's most recent document accepting both the DSRC "A" mask and the DSRC "C" for 4.9 GHz public safety use. They were also made aware of the FCC's decision to not require regional planning in the administration of 4.9 GHz public safety spectrum and that while the FCC thinks the RPC approach might benefit the

implementation across the country, they would not mandate that users adhere to a regional plan.

Chairperson Devine suggested a plan be filed that explained the 4.9 GHz band, its anticipated use and benefits to the Region 24 public safety community, the geographic licenses issued based on jurisdictional boundaries and how those differ from previous licenses and how the RPC would be a “clearinghouse” to the users community and assist those that wanted to implement 4.9 GHz. The RPC is planning on utilizing the CAPRAD database to document the use within the region, but will need the help of the users to accomplish this.

The RPC members in attendance supported this approach and recommended the Chairperson DRAFT a 4.9 GHz plan that included guidelines for use and explained how the RPC would not develop a plan, but rather assist in the development in the band while documenting its use across Region 24.

**Meeting adjourned at 250 PM CST**

March 7, 2005

Region 24 re-files 700 MHz plan with FCC WTB

## **Appendix E**

### **Table of Interoperability Channels**

NOTE: The interoperability nomenclature identified below is for reference only pending finalization of channel labeling recommendations currently before the FCC.

These recommendations originated from the National Coordination Committee (NCC) Interoperability Subcommittee asking for standardized channel nomenclature and labeling. The Federal Communications Commission’s decisions on channel labeling can alter these values accordingly. The FCC designated 700 MHz

interoperability channels will be administered by the Missouri Statewide Interoperability Executive Committee with Federal Communications Commission rules. The FCC's final ruling on interoperability channel labeling and interoperability channel designations and the Missouri Statewide Interoperability Executive Committee interpretation of those rules take precedence over any Region 24 recommendation in this plan.

#### For Specific Uses/Services

<b>16 CHANNEL SETS</b>	<b>DESCRIPTION</b>	<b>LABEL</b>
<i>Channel 23 &amp; 24</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC58</i>
<i>Channel 103 &amp; 104</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC62</i>
<i>Channel 183 &amp; 184</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC66</i>
<i>Channel 263 &amp; 264</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC70</i>
Channel 39 & 40	Calling Channel	7CAL59
Channel 119 & 120	General Public Safety Service	7TAC63
Channel 199 & 200	General Public Safety Service	7TAC67
Channel 279 & 280	Mobile Data	7DAT71
Channel 63 & 64	Emergency Medical Service	7EMS60
Channel 143 & 144	Fire Service	7FIR64
Channel 223 & 224	Law Enforcement Service	7LAW68
Channel 303 & 304	Mobile Repeater	7MOB68
Channel 79 & 80	Emergency Medical Service	7EMS61
Channel 159 & 160	Fire Service	7FIR65
Channel 239 & 240	Law Enforcement Service	7LAW69
Channel 319 & 320	Other Public Service	7TAC73
<i>Channel 657 &amp; 658</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC74</i>
<i>Channel 737 &amp; 738</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC78</i>
<i>Channel 817 &amp; 818</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC82</i>

<i>Channel 897 &amp; 898</i>	<i>General Public Safety Services (secondary trunked)</i>	<i>7TAC86</i>
Channel 681 & 682	Calling Channel	7CAL75
Channel 761 & 762	General Public Safety Service	7TAC79
Channel 841 & 842	General Public Safety Service	7TAC83
Channel 921 & 922	Mobile Data	7DAT87
Channel 641 & 642	Emergency Medical Service	7EMS76
Channel 721 & 742	Fire Service	7FIR80
Channel 801 & 802	Law Enforcement Service	7LAW84
Channel 881 & 882	Mobile Data	7MOB88
Channel 697 & 698	Emergency Medical Service	7EMS77
Channel 777 & 778	Fire Services	7FIR81
Channel 857 & 858	Law Enforcement Service	7LAW85
Channel 937 & 938	Other Public Services	7TAC89

*Trunking is permitted on the 10 channel sets indicated in italic*

## **Project 25 Common Air Interface**

### **Interoperability channel parameters**

Certain common P25 parameters need to be defined to ensure digital radios operating on the 700 MHz Interoperability Channels can communicate. This is analogous to defining the common CTCSS tone used on NPSPAC analog Interoperability channels.

#### **Network Access Code**

In the Project 25 Common Air Interface definition, the Network Access Code is analogous to the use of CTCSS and CDCSS signals in analog radio systems. It is a code transmitted in the pre-amble of the P25 signal and repeated periodically throughout the transmission. Its purpose is to provide selective access to and maintain access to a receiver. It is also used to block nuisance and other co-channel signals. There are up to 4096 of these NAC codes. For ease of migration in other frequency bands, a NAC code table was developed which shows a mapping of CTCSS and CDCSS signals into corresponding NAC codes. Document TIA/EIA TSB102.BAAC contains NAC code table and other Project 25 Common Air Interface Reserve Values.

Use of corresponding NAC code \$293 is required for the 700 MHz Interoperability Channel NAC code.

#### **Talk group ID**

In the Project 25 Common Air Interface definition, the Talk group ID on conventional channels is analogous to the use of talk groups in trunking. In order to ensure that all users can communicate, all units should use a common Talk group ID.



Recommendation: Use P25 default value for Talk group ID = \$0001

### **Manufacturer's ID**

The Project 25 Common Air Interface allows the ability to define manufacturer specific functions. In order to ensure that all users can communicate, all units should not use a specific Manufacturer's ID, but should use the default value of \$00.

### **Message ID**

The Project 25 Common Air Interface allows the ability to define specific message functions. In order to ensure that all users can communicate, all units should use the default Message ID for unencrypted messages of \$00000000000000000000.

### **Encryption Algorithm ID and Key ID**

The Project 25 Common Air Interface allows the ability to define specific encryption algorithms and encryption keys. In order to ensure that all users can communicate, encryption should not be used on the Interoperability Calling Channels, all units should use the default Algorithm ID for unencrypted messages of \$80 and default Key ID for unencrypted messages 0000. These same defaults may be used for the other Interoperability channels when encryption is not used.

Use of encryption is allowed on the other Interoperability channels. Regional Planning Committees need to define appropriate Message ID, Encryption Algorithm ID, and Encryption Key ID to be used in the encrypted mode on Interoperability channels.

## **Appendix F**

### **NCC 700 MHz Pre-Assignment Rules/Recommendations**

#### **Introduction**

A process for doing the initial block assignments of 700 MHz channels before details of actual system deployments is required. In this initial phase, there is little actual knowledge of what specific equipment is to be deployed and where the sites will be. As a result, a high level simplified method is proposed to establish guidelines for frequency coordination. When actual systems are deployed, additional details will be known and the system designers will be required to select specific sites and supporting hardware to control interference.

#### **Overview**

Assignments will be based on a defined service area of each applicant. For Public Safety entities this will normally be a geographically defined area such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area. TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dB $\mu$ , or greater, signal in all systems coverage areas.

For co-channel assignments, the 40dB $\mu$  contour will be allowed to extend beyond the defined service area by 3 to 5 miles, depending on the type of environment, urban, suburban or low density. The interfering co-channel 15 dB $\mu$  contour will be allowed to touch but not overlap the 40 dB $\mu$  contour of the system being evaluated. All contours are (50,50). TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dB $\mu$ , or greater, signal in all systems coverage areas.

For adjacent and alternate channels, the interfering channels 60 dB $\mu$  will be allowed to touch but not overlap the 40 dB $\mu$  contour of the system being evaluated. All contours are (50,50). TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dB $\mu$ , or greater, signal in all systems coverage areas.

### 7.4.1.1 Discussion

The FCC limits the maximum field strength to 40 dB relative to  $1\mu\text{V/m}$  (customarily denoted as 40 dB $\mu$ ). It is assumed that this limitation will be applied similarly to the way it is applied in the 821-824/866/869 MHz band. That is, a 40 dB $\mu$  field strength can be deployed up to a defined distance from the edge of the service area, based on the size of the service area or type of applicant, i.e. city, county or statewide system. This is important as the potential for interference from CMRS infrastructure demands that public safety systems have adequate margins for reliability in the presence of interference. The value of 40 dB $\mu$  corresponds to a signal of -92.7 dBm, received by a half-wavelength dipole ( $\lambda/2$ ) antenna. The thermal noise floor for a 6.25 kHz receiver would be in the range of -126 dBm, so there is a margin of approximately 33 dB available for “noise limited” reliability. Figure 1 shows show the various interfering sources and how they accumulate to form a composite noise floor that can be used to determine the “reliability” or probability of achieving the desired performance in the presence of various interfering sources with differing characteristics.

Allowing for a 3 dB reduction in the available margin due to CMRS OOB noise lowers the reliability and/or the channel performance of Public Safety systems. TIA TR8 made this allowance during the meetings in Mesa, AZ, January 2001. In addition, there are various channel bandwidths with different performance criteria and unknown adjacent and alternate channel assignments need to be accounted for. The co-channel and adjacent/alternate sources are shown in the right hand side of Figure 1. There would be a single co-channel source, but potentially several adjacent or alternate channel sources involved.

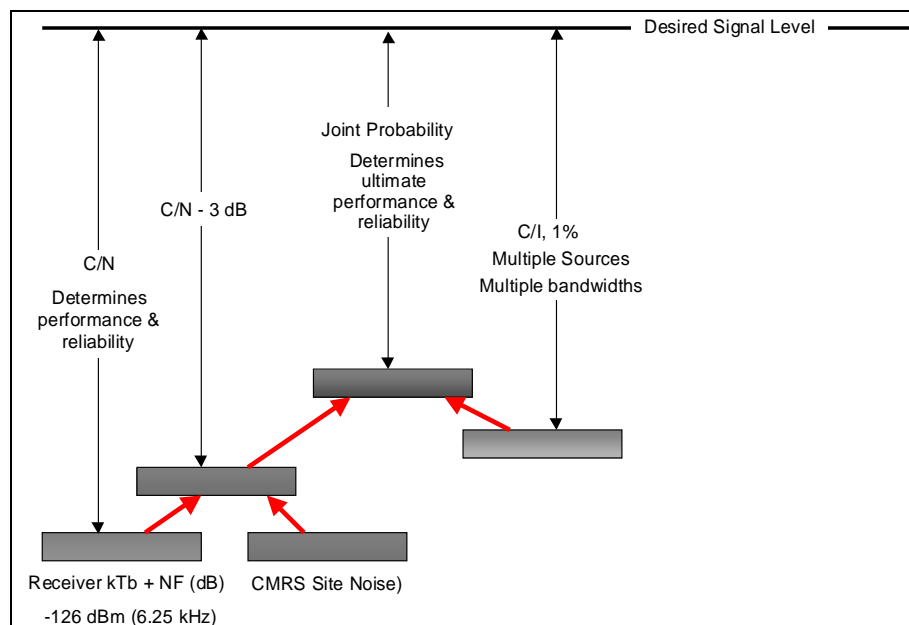


Figure 1 - Interfering Sources Create A “Noise” Level Influencing Reliability

It is recommended that co-channel assignments limit the C/I at the edge (worst case mile) be sufficient to limit that interference to <1%. A C/I ratio of 26.4 dB plus the required capture value

required to achieve this goal.. A 17 - 20 dB C/N is required to achieve channel performance. Table 1 shows estimated performance considering the 3 dB noise floor rise at the 40 dB $\mu$  signal level. Performance varies due to the different Cf/N requirements of the different modulations and channel bandwidths. These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

<b>Comparison of Joint Reliability for various configurations</b>				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver ENBW (kHz)	6	6	9	18
Noise Figure(10 dB)	10	10	10	10
Receiver Noise Floor (dBm)	-126.22	-126.22	-124.46	-121.45
Rise in Noise Floor (dB)	3.00	3.00	3.00	3.00
New Receiver Noise Floor (dB)	-123.22	-123.22	-121.46	-118.45
40 dBu = -92.7 dBm	-92.7	-92.7	-92.7	-92.7
Receiver Capture (dB)	10.0	10.0	10.0	10.0
Noise Margin (dB)	30.52	30.52	28.76	25.75
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
C/N Margin (dB)	<b>13.52</b>	<b>13.52</b>	<b>10.76</b>	<b>5.75</b>
Standard deviation (8 dB)	8.0	8.0	8.0	8.0
Z	1.690	1.690	1.345	0.718
Noise Reliability (%)	<b>95.45%</b>	<b>95.45%</b>	<b>91.06%</b>	<b>76.37%</b>
C/I for <1% prob of capture	36.4	36.4	36.4	36.4
I (dBu)	3.7	3.7	3.7	3.7
I (dBm)	-129.0	-129.0	-129.0	-129.0
Joint Probability (C & I)	<b>94.2%</b>	<b>94.2%</b>	<b>90.4%</b>	<b>75.8%</b>
40 dBu = -92.7 dBm @ 770 MHz				

Table 1 Joint Probability For Project 25, 700 MHz Equipment Configurations.

To analyze the impact of requiring portable in building coverage, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Then the impact of simulcast is included to show that the 40 dB $\mu$  must be able to fall outside the edge of the service area. From the analysis, recommendations of how far the 40 dB $\mu$  extensions should be allowed to occur are made.

Table 2 Estimates urban coverage where simulcast is required to achieve the desired portable in building coverage. Several assumptions are required to use this estimate.

- Distance from the location to each site. Equal distance is assumed.
- CMRS noise is reduced when entering buildings. This is not a guarantee as the type of deployments is unknown. It is possible that CMRS units may have transmitters inside buildings. This could be potentially a large contributor unless the CMRS OOB is suppressed to TIA's most recent recommendation and the "site isolation" is maintained at 65 dB minimum.
- The 40 dB $\mu$  is allowed to extend beyond the edge of the service area boundary.
- Other configurations may be deployed utilizing additional sites, lower tower heights, lower ERP and shorter site separations.

Estimated Performance at 2.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz

Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-72.7	-72.7	-72.7	-72.7
Margin (dB)	53.50	53.50	51.80	45.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	20	20	20	20
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	<b>85.60%</b>	<b>85.60%</b>	<b>76.58%</b>	<b>39.17%</b>
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 2, Estimated Performance From Site(s) 2.5 Miles From Typical Urban Buildings.

Table 2 shows for the example case of 2.5 miles that simulcast is required to achieve public safety levels of reliability. The difference in performance margin requirements would require more sites and closer site-to-site separation for wider bandwidth channels.

Figures 2 and 3 show how the configurations would potentially be deployed for a typical site with 240 Watts ERP. This is based on:

- 75 Watt transmitter, 18.75 dBW
  - 200 foot tower
  - 10 dBd 180 degree sector antenna +10.0 dBd
  - 5 dB of cable/filter loss. - 5.0 dB
- 23.75 dBW  $\approx$  240 Watts (ERPd)

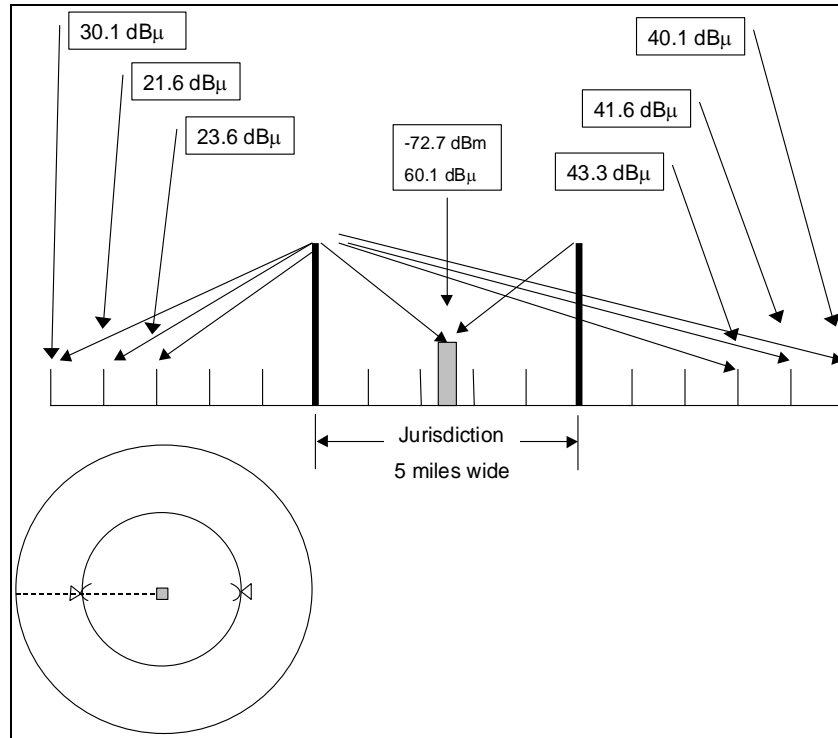


Figure 2 - Field Strength From Left Most Site.

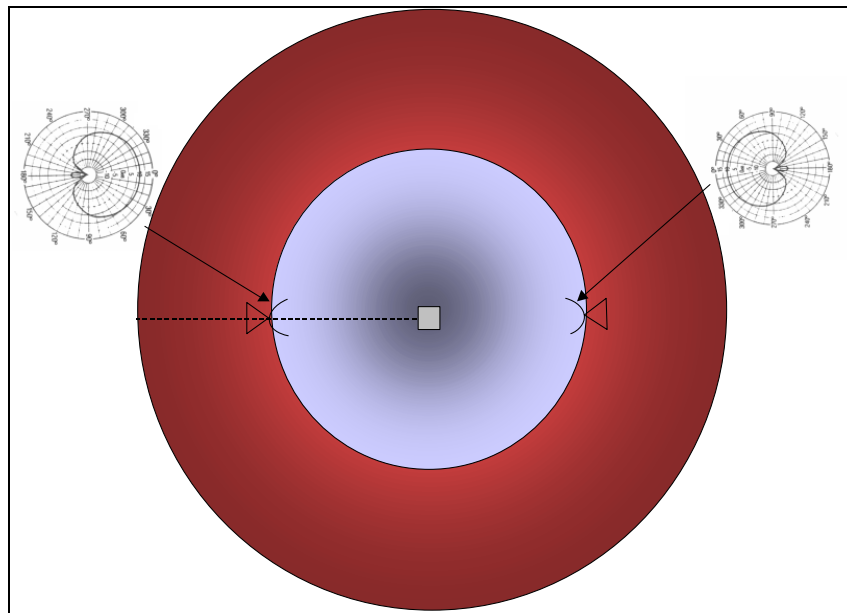


Figure 3 - Antenna Configuration Required To Limit Field Strength Off "Backside"

Figure 2 is for an urbanized area with a jurisdiction of a 5-mile circle. To provide the necessary coverage to portables in buildings at the center of the jurisdiction requires that the sites be placed along the edge of the service area utilizing direction antennas oriented toward the center of the

service area (Figure 3). In this case, at 5 miles beyond the edge of the service area, the sites would produce composite field strength of approximately 40 dB $\mu$ . Since one site is over 10 dB dominant, the contribution from the other site is not considered. The control of the field strength behind the site relies on a 20 dB antenna with a Front to Back Ratio (F/B) specification as shown in Figure 3. This performance may be optimistic due to backscatter off local obstructions in urbanized areas. However, use of antennas on the sides of buildings can assist in achieving better F/B ratios and the initial planning is not precise enough to prohibit using the full 20 dB.

The use of a single site at the center of the service area is not normally practical. To provide the necessary signal strength at the edge of the service area would produce field strength 5 miles beyond in excess of 44 dB $\mu$ . However, if the high loss buildings were concentrated at the service area's center, then potentially a single site could be deployed, assuming that the building loss sufficiently decreases near the edge of the service area allowing a reduction in ERP to achieve the desired reliability.

The down tilting of antennas to control the 40 dB $\mu$  is not practical as the difference in angular discrimination from a 200-foot tall tower at 2.5 miles and 10 miles is approximately 0.6 degrees.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBm can be determined from Table Z. Recommendations are made in Table 6.

Estimated Performance at 3.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-77.7	-77.7	-77.7	-77.7
Margin (dB)	48.50	48.50	46.80	40.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	15	15	15	15
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	<b>85.60%</b>	<b>85.60%</b>	<b>76.58%</b>	<b>39.17%</b>
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 3 - Lower Loss Buildings, 3.5 Mile From Site(s)

Estimated Performance at 5.0 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-82.7	-82.7	-82.7	-82.7
Margin (dB)	43.50	43.50	41.80	35.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	10	10	10	10
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	<b>85.60%</b>	<b>85.60%</b>	<b>76.58%</b>	<b>39.17%</b>
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 4 - Low Loss Buildings, 5.0 Miles From Site(s)

Note that the receive signals were adjusted to offset the lowered building penetration loss. This produces the same numerical reliability results, but allows increasing the site to building separation and this in turn lowers the magnitude of the “overshoot” across the service area.

Table 5 shows the field strength for a direct path and for a path reduced by a 20 dB F/B antenna. This allows the analysis to be simplified for the specific example being discussed.

Overshoot Distance (mi)	Field Strength (dBμ)	20 dB F/B (dBμ)
1	73.3	53.3
2	63.3	43.3
2.5	60.1	40.1
3	57.5	37.5
4	53.3	33.5
5	50.1	30.1
...	...	
10	40.1	
11	38.4	
12	37.5	
13	36.0	
14	34.5	
15	33.0	



Table 5 - Field Strength Vs. Distance From Site

This allows the overshoot to be 11 miles so the extension of the 40 dbm can be 4 miles for suburbanized territory. For the more rural territory, the limit is the signal strength off the back of the antenna. So the result is that for various types of urbanized areas the offset of the 40 dbm should be:

Type of Area	Extension (mi.)
Urban (20 dB Buildings)	5
Suburban (15 dB Buildings)	4
Rural (10 dB Buildings)	3

Table 6 - Recommended Extension Distance Of 40 Db $\mu$  Field Strength

The 40 dB $\mu$  can then be constructed based on the defined service area without having to perform an actual prediction. Since the 40 dB $\mu$  is beyond the edge of the service area, some relaxation in the level of I is reasonable. Therefore a 35 dB ration is recommended and is consistent with what is currently being licensed in the 821-824/866-869 MHz Public Safety band.

#### Co-Channel Recommendation

- Allow the constructed 40 dB $\mu$  (50,50) to extend beyond the edge of the defined service area by the distance indicated in Table 6.
- Allow the Interfering 15 dB $\mu$  (50,50) to intercept but not overlap the 40 dB $\mu$  contour.

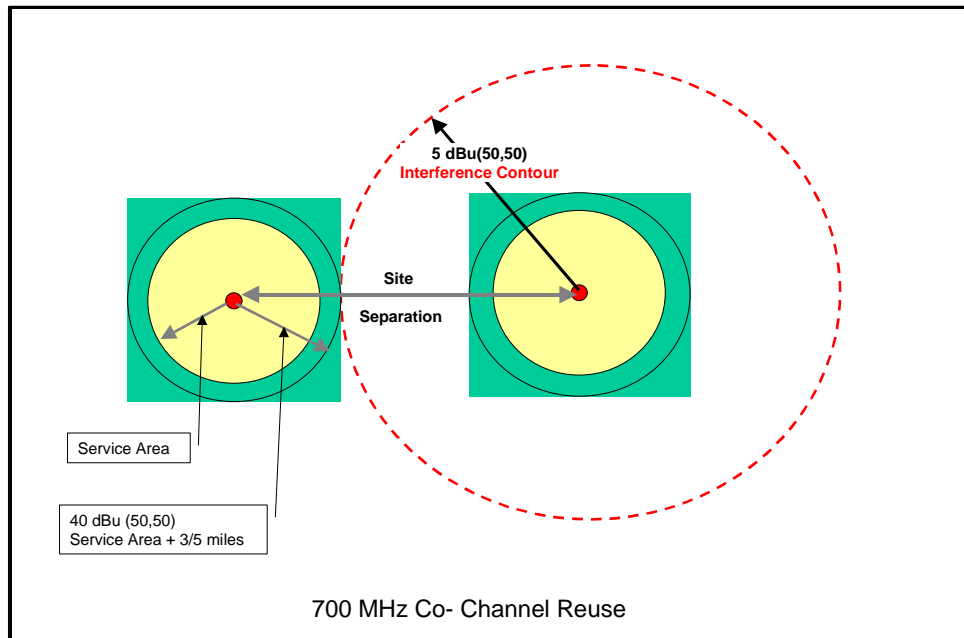


Figure 4 - Co-Channel Reuse Criterion

### Adjacent and alternate Channel Considerations

Adjacent and alternate channels are treated as being noise sources that alter the composite noise floor of a victim receiver. Using the 47 CFR § 90.543 values of ACCP can facilitate the coordination of adjacent and alternate channels. The C/I requirements for <1% interference can be reduced by the value of ACCPR. For example to achieve an X dB C/I for the adjacent channel that is -40 dBc a C/I of [X-40] dB is required. Where the alternate channel ACP value is -60 dBc, then the C/I = [X-60] dB is the goal for assignment(s). There is a compounding of interference energy, as there are numerous sources, i.e. co channel, adjacent channels and alternate channels plus the noise from CMRS OOB.

There is insufficient information in 47 CFR § 90.543 to include the actual receiver performance. Receivers typically have “skirts” that allow energy outside the bandwidth of interest to be received. In addition, the FCC defines ACCP differently than does the TIA. The term used by the FCC is the same as the TIA definition of ACP. The subtle difference is that ACCP defines the energy intercepted by a defined receiver filter. ACP defines the energy in a measured bandwidth that is typically wider than the receiver. As a result, the FCC values are optimistic at very close spacing and somewhat pessimistic at wider spacing, as the typical receiver filter is less than the channel bandwidth.

In addition, as a channel bandwidth is increased, the total noise is allowed to rise, as it is initially defined in a 6.25 kHz channel bandwidth. However, the effect is diminished at very close spacing as the noise is rapidly falling off. At greater spacing, the noise is essentially flat and the receiver’s filter limits the noise to the specified 3 dB rise in the thermal noise floor.

Digital receivers tend to be less tolerant to interference than analog. Therefore a 3 dB reduction in the C/(I+N) can reduce a DAQ = 3 to a DAQ = 2 which is threshold to complete receiver muting. Therefore at least 17 dB plus the margin for keeping the interference below 1% probability requires a total margin of 43.4 dB. However, this margin would be at the edge of the service area and the 40 dBμ is allowed to extend past the edge of the service area.

Frequency drift is controlled by the FCC requirement for 0.4-ppm stability when locked. This equates to approximately a 1 dB standard deviation, which is negligible when associated with the recommended initial lognormal standard deviation of 8 dB and can be ignored.

Project 25 requires that a transceiver receiver have an ACIPR of 60 dB. This implies that an ACCPR ≥ 65 dB will exist for a “companion receiver”. A companion receiver is one that is designed for the specific modulation. At this time the highest likelihood is that receivers will be deploying the following receiver bandwidths at the following channel bandwidths.

Estimated Receiver Parameters	
Channel Bandwidth	Receiver Bandwidth
6.25 kHz	5.5 kHz
12.5 kHz	5.5 or 9 kHz
25 kHz	18.0 kHz

Table 7 - Estimated Receiver Parameters

Based on 47 CFR ¶ 90.543 and the P25 requirement for an ACCPR ≥ 65 dB into a 6.0 kHz channel bandwidth and leaving room for a migration from Phase 1 to Phase 2, allows for making the simplifying assumption that 65 dB ACCPR is available for both adjacent 25 kHz block.

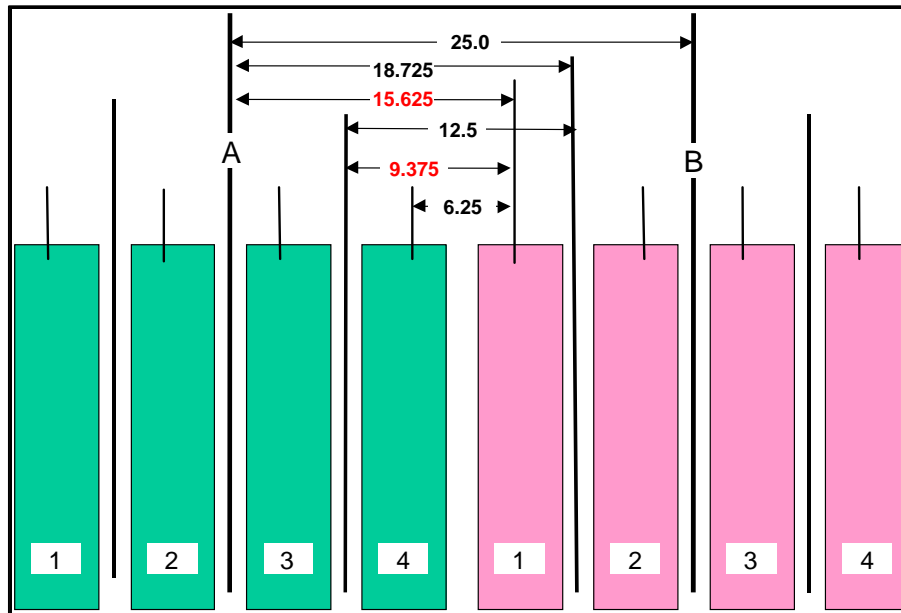


Figure 5, Potential Frequency Separations

Base initial (presorts) on 25 kHz channels. This provides the maximum flexibility by using 65 dB ACCPR for all but one possible combination of 6.25 kHz channels within the 25 kHz allotment.

Case	ACCPR
25 kHz	65 dB
18.725 kHz	65 dB
15.625 kHz	>40 dB
12.5 kHz	65 dB
9.375 kHz	>40 dB
6.25 kHz	65 dB

Table 8 - ACCPR Values For Potential Frequency Separations

All cases meet or exceed the FCC requirement. The most troublesome cases occur where the wider bandwidths are working against a Phase 2 narrowband 6.25 kHz channel. If system designers keep this consideration in mind and move the edge 6.25 kHz channels inward on their own systems, then a constant value of 65 dB ACCPR can be applied across all 25 kHz channels regardless of what is eventually deployed.

For other blocks, it must be assumed that transmitter filtering in addition to transmitter performance improvements with greater frequency separation will further reduce the ACCPR.

Therefore it is recommended that a consistent value of 65 dB ACCPR be used for coordinating adjacent 25 kHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the "I" contour to be approximately 20 dB above the 40 dB $\mu$  contour, 60 dB $\mu$ .

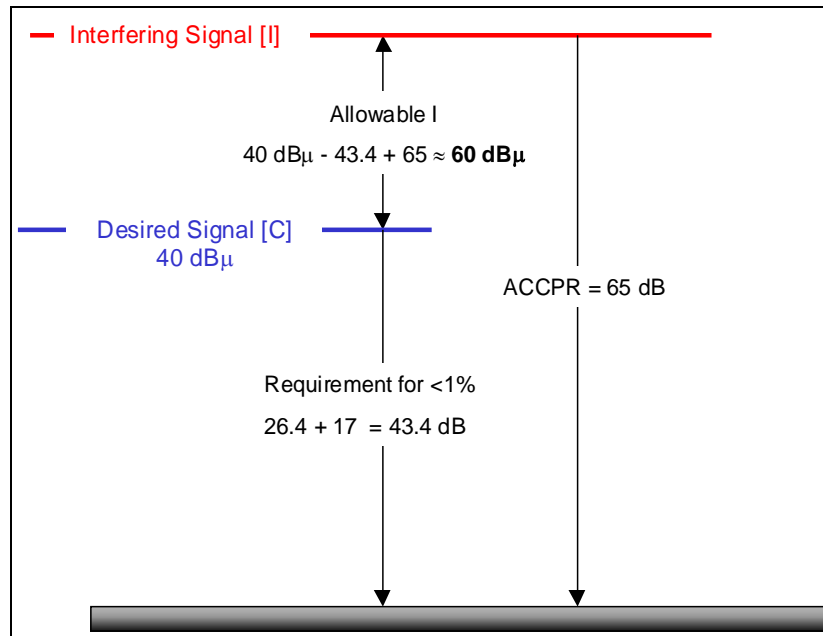


Figure 6 - Adjusted Adjacent 25 kHz Channel Interfering Contour Value

An adjacent Interfering (25 kHz) channel shall be allowed to have its 60 dB $\mu$  (50,50) contour touch but not overlap the 40 dB $\mu$  (50,50) contour of a system being evaluated. Evaluations should be made in both directions.

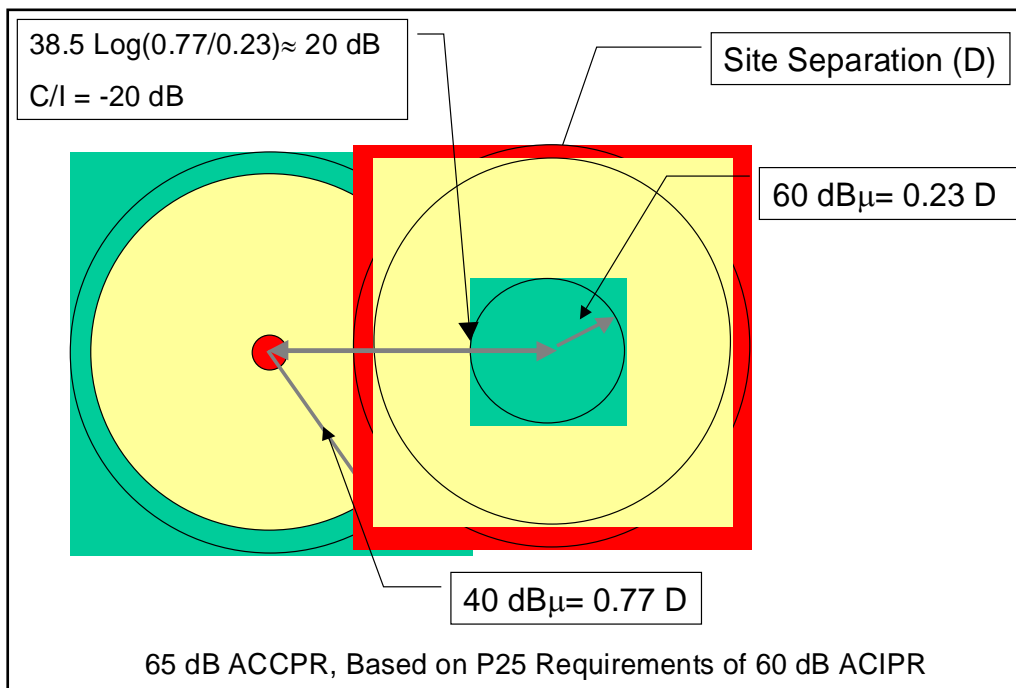


Figure 7 - Example Of Adjacent/Alternate Overlap Criterion  
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This simple method is only adequate for presorting large blocks to potential entities. A more detailed analysis should be executed in the actual design phase to take all the issues into consideration. Additional factors that should be considered include:

- Degree of Service Area Overlap
- Different size of Service Areas
- Different ERP's and HAAT's
- Actual Terrain and Land Usage
- Differing User Reliability Requirements
- Migration from Project 25 Phase 1 to Phase 2
- Actual ACCP
- Balanced Systems
- Mobiles vs. Portables
- Use of voting
- Use of simulcast
- Radio specifications
- Simplex Operation
- Future unidentified requirements.

Special attention needs to be paid to the use of simplex operation. In this case, an interferer can be on an offset adjacent channel and in extremely close proximity to the victim receiver. This is especially critical in public safety where simplex operations are frequently used at a fire scene or during police operation. This type operation is also quite common in the lower frequency bands. In those cases, evaluation of base-to-base as well as mobile-to-mobile interference should be considered and evaluated.

## Carrier to Interference Requirements

There are two different ways that interference is considered.

- Co Channel
- Adjacent and Alternate Channels

Both involve using a C/I ratio. The C/I ratio requires a probability be assigned. For example, a 10% Interference is specified; the C/I implies 90% probability of successfully achieving the desired ratio. At 1% interference, means that there is a 99% probability of achieving the desired C/I.

$$\frac{C}{I} \% = \frac{1}{2} \bullet \operatorname{erfc} \left( \frac{\frac{C}{I} \text{ margin}}{2\sigma} \right) \quad (1)$$

This can also be written in a form using the standard deviate unit (Z). In this case the Z for the desired probability of achieving the C/I is entered. For example, for a 90% probability of achieving the necessary C/I, Z = 1.28.

$$\frac{C}{I} \% = Z \cdot \sqrt{2} \cdot \sigma \quad (2)$$

The most common requirements for several typical lognormal standard deviations ( $\sigma$ ) are included in the following table based on Equation (2).

Location Standard Deviation ( $\sigma$ ) dB	5.6	6.5	8	10
Probability %				
10%	10.14 dB	11.77 dB	14.48 dB	18.10 dB
5%	13.07 dB	15.17 dB	18.67 dB	23.33 dB
4%	13.86 dB	16.09 dB	19.81 dB	24.76 dB
3%	14.90 dB	17.29 dB	21.28 dB	26.20 dB
2%	16.27 dB	18.88 dB	23.24 dB	29.04 dB
1%	18.45 dB	21.42 dB	26.36 dB	32.95 dB

Table A1 - Probability Of Not Achieving C/I For Various Location Lognormal Standard Deviations

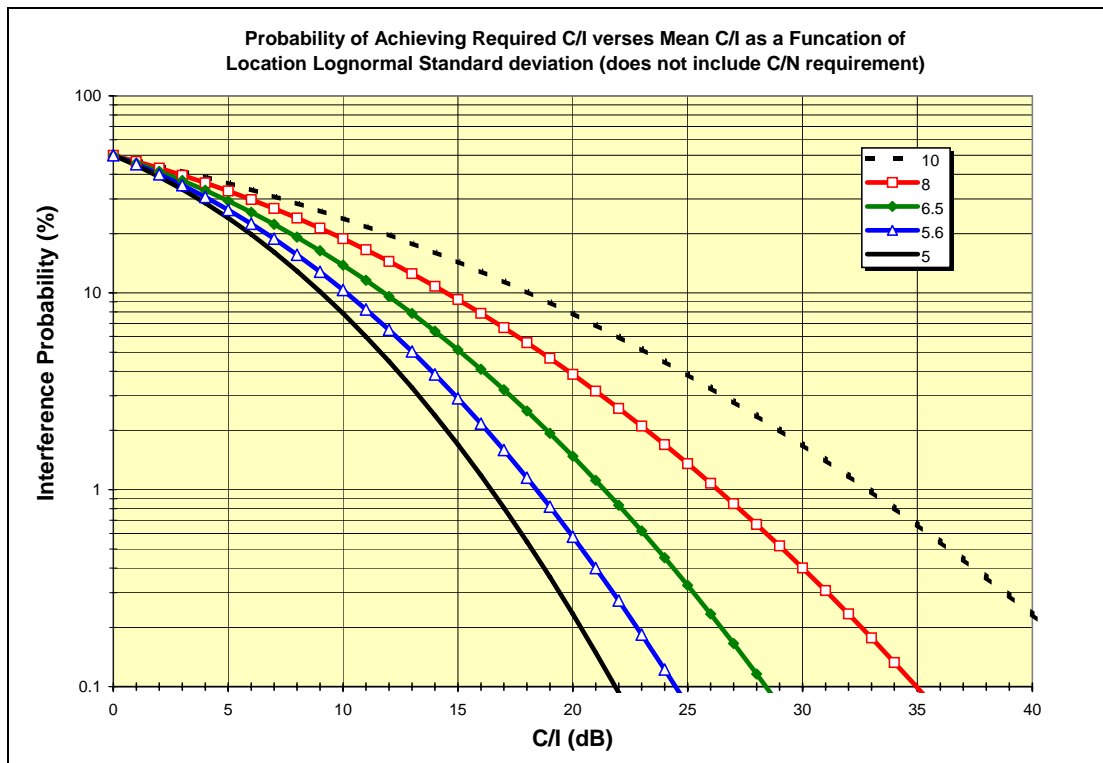


Figure A1, Probability Of Achieving Required C/I As A Function Of Location Standard Deviation

For co-channel the margin needs to include the “capture” requirement. When this is done, then a 1% probability of co channel interference can be rephrased to mean, there is a 99% probability that the “capture ratio” will be achieved. The capture ratio varies with the type of modulation. Older analog equipment has a capture ratio of approximately 7 dB. Project 25 FDMA is specified at 9 dB. Figure A1 shows the C/I requirement without including the capture requirement.

The 8 dB values for lognormal location standard deviation is reasonable when little information is available. Later when a detailed design is required, additional details and high-resolution terrain and land usage databases will allow a lower value to be used. The TIA recommended value is 5.6 dB. This provides the additional flexibility necessary to complete the design

To determine the desired probability that both the C/N and C/I will be achieved requires that a joint probability be determined. Figure A2 shows the effects of a family of various levels of C/N reliability and the joint probability (Y-axis) in the presence of various probabilities of Interference. Note that at 99% reliability with 1% interference (X-axis) that the reduction is nearly the difference. This is because the very high noise reliability is degraded by the interference, as there is little probability that the noise criterion will not be satisfied. At 90%, the 1% interference has a greater likelihood that it will occur simultaneously when the noise criterion not being met, resulting in a less degradation of the 90%



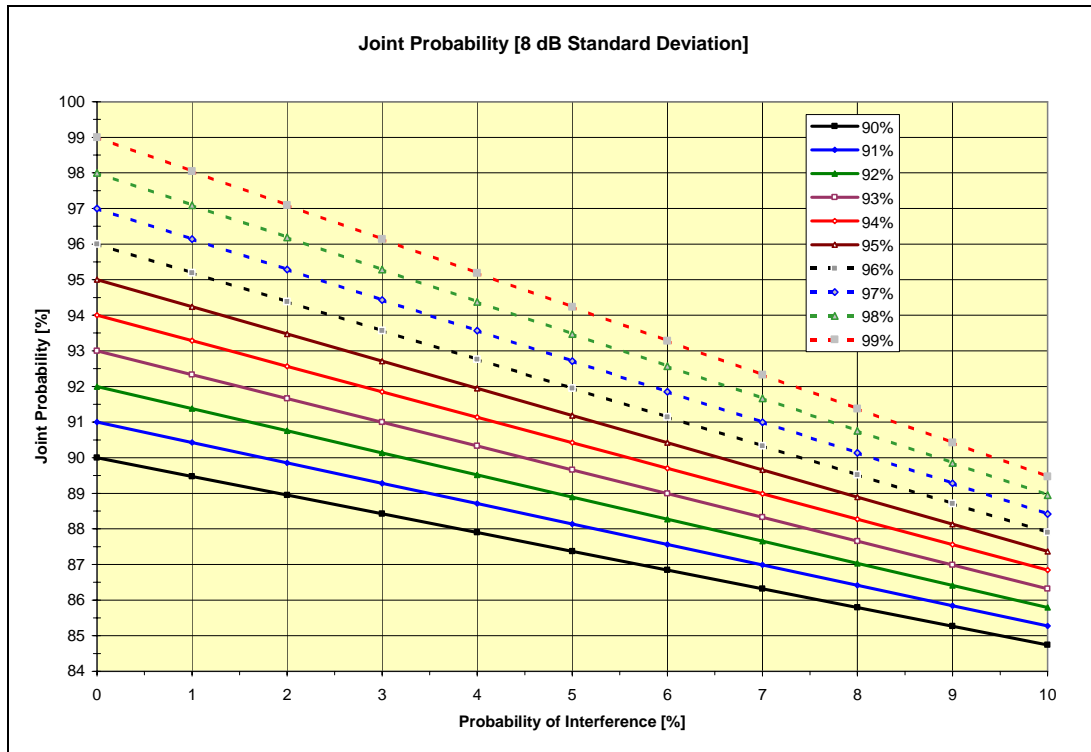


Figure A2 - Effect Of Joint Probability On The Composite Probability

For adjacent and alternate channels, the channel performance requirement must be added to the C/I ratio. When this is applied, then a 1% probability of adjacent/alternate channel interference can be rephrased to mean, there is a 99% probability that the “channel performance ratio” will be achieved.

## Appendix G

**The Region 24 Channel allocations have been established by the National Public Safety Telecommunications Council's channel packing program. Region 24 anticipates an open filing window where applicants can apply for available channels in their county area, until all channels are depleted. A "County Area" is defined as an area consisting of the area within the county as well as a distance of up to 10 miles outside of the county. It is anticipated this extended county area will enable Region 24 to maximize channel re-use of any "orphan" remainders.**

04/21/03

### Region 24 - Missouri Channel Allotments by Class

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#### General Use

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County area	Band	FCC Channel Number	Base Frequency	Mobile Frequency	Notation
Adair	Voice 25KHz	17-20	764.11250	794.11250	
	Voice 25KHz	57-60	764.36250	794.36250	
	Voice 25KHz	125-128	764.78750	794.78750	
	Voice 25KHz	177-180	765.11250	795.11250	
	Voice 25KHz	281-284	765.76250	795.76250	
	Voice 25KHz	329-332	766.06250	796.06250	
	Voice 25KHz	385-388	766.41250	796.41250	
	Voice 25KHz	437-440	766.73750	796.73750	
	Voice 25KHz	477-480	766.98750	796.98750	
	Voice 25KHz	501-504	773.13750	803.13750	
	Voice 25KHz	577-580	773.61250	803.61250	
	Voice 25KHz	617-620	773.86250	803.86250	
	Voice 25KHz	709-712	774.43750	804.43750	
	Voice 25KHz	793-796	774.96250	804.96250	
	Voice 25KHz	861-864	775.38750	805.38750	
	Voice 25KHz	913-916	775.71250	805.71250	
	Data 50KHz	67	770.32500	800.32500	
	Data 50KHz	68	770.37500	800.37500	
	Data 50KHz	69	770.42500	800.42500	
Andrew	Voice 25KHz	93-96	764.58750	794.58750	
	Voice 25KHz	173-176	765.08750	795.08750	
	Voice 25KHz	281-284	765.76250	795.76250	
	Voice 25KHz	353-356	766.21250	796.21250	
	Voice 25KHz	397-400	766.48750	796.48750	

	Voice 25KHz	437-440	766.73750	796.73750
	Voice 25KHz	597-600	773.73750	803.73750
	Voice 25KHz	673-676	774.21250	804.21250
	Voice 25KHz	797-800	774.98750	804.98750
	Voice 25KHz	861-864	775.38750	805.38750
	Voice 25KHz	945-948	775.91250	805.91250
	Data 50KHz	43	769.12500	799.12500
	Data 50KHz	44	769.17500	799.17500
	Data 50KHz	45	769.22500	799.22500
	Data 50KHz	88	771.37500	801.37500
	Data 50KHz	89	771.42500	801.42500
	Data 50KHz	90	771.47500	801.47500
Atchison	Voice 25KHz	341-344	766.13750	796.13750
	Voice 25KHz	385-388	766.41250	796.41250
	Voice 25KHz	509-512	773.18750	803.18750
	Voice 25KHz	589-592	773.68750	803.68750
	Voice 25KHz	717-720	774.48750	804.48750
	Voice 25KHz	825-828	775.16250	805.16250
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
Audrain	Data 50KHz	63	770.12500	800.12500
	Voice 25KHz	97-100	764.61250	794.61250
	Voice 25KHz	245-248	765.53750	795.53750
	Voice 25KHz	329-332	766.06250	796.06250
	Voice 25KHz	421-424	766.63750	796.63750
	Voice 25KHz	465-468	766.91250	796.91250
	Voice 25KHz	513-516	773.21250	803.21250
	Voice 25KHz	617-620	773.86250	803.86250
	Voice 25KHz	705-708	774.41250	804.41250
	Voice 25KHz	821-824	775.13750	805.13750
	Voice 25KHz	901-904	775.63750	805.63750
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
Barry	Data 50KHz	87	771.32500	801.32500
	Voice 25KHz	49-52	764.31250	794.31250
	Voice 25KHz	169-172	765.06250	795.06250
	Voice 25KHz	289-292	765.81250	795.81250
	Voice 25KHz	357-360	766.23750	796.23750
	Voice 25KHz	473-476	766.96250	796.96250
	Voice 25KHz	481-484	773.01250	803.01250
	Voice 25KHz	537-540	773.36250	803.36250
	Voice 25KHz	625-628	773.91250	803.91250
	Voice 25KHz	901-904	775.63750	805.63750
	Voice 25KHz	941-944	775.88750	805.88750
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
	Data 50KHz	70	770.47500	800.47500
	Data 50KHz	71	770.52500	800.52500
	Data 50KHz	72	770.57500	800.57500

Barton	Voice 25KHz	125-128	764.78750	794.78750	
	Voice 25KHz	321-324	766.01250	796.01250	
	Voice 25KHz	369-372	766.31250	796.31250	
	Voice 25KHz	513-516	773.21250	803.21250	
	Voice 25KHz	569-572	773.56250	803.56250	Campus
	Voice 25KHz	701-704	774.38750	804.38750	
	Voice 25KHz	705-708	774.41250	804.41250	Campus
	Voice 25KHz	789-792	774.93750	804.93750	
	Data 50KHz	64	770.17500	800.17500	
	Data 50KHz	65	770.22500	800.22500	
	Data 50KHz	66	770.27500	800.27500	
	Data 50KHz	79	770.92500	800.92500	
	Data 50KHz	80	770.97500	800.97500	
	Data 50KHz	81	771.02500	801.02500	
Bates	Voice 25KHz	89-92	764.56250	794.56250	
	Voice 25KHz	325-328	766.03750	796.03750	Campus
	Voice 25KHz	333-336	766.08750	796.08750	
	Voice 25KHz	377-380	766.36250	796.36250	Campus
	Voice 25KHz	417-420	766.61250	796.61250	
	Voice 25KHz	465-468	766.91250	796.91250	Campus
	Voice 25KHz	473-476	766.96250	796.96250	
	Voice 25KHz	509-512	773.18750	803.18750	
	Voice 25KHz	521-524	773.26250	803.26250	Campus
	Voice 25KHz	633-636	773.96250	803.96250	Campus
	Voice 25KHz	677-680	774.23750	804.23750	
	Voice 25KHz	717-720	774.48750	804.48750	Campus
	Voice 25KHz	741-744	774.63750	804.63750	
	Voice 25KHz	821-824	775.13750	805.13750	Campus
	Voice 25KHz	833-836	775.21250	805.21250	Campus
	Voice 25KHz	869-872	775.43750	805.43750	
	Voice 25KHz	909-912	775.68750	805.68750	
	Data 50KHz	61	770.02500	800.02500	
	Data 50KHz	62	770.07500	800.07500	
	Data 50KHz	63	770.12500	800.12500	
Benton	Voice 25KHz	81-84	764.51250	794.51250	
	Voice 25KHz	257-260	765.61250	795.61250	
	Voice 25KHz	297-300	765.86250	795.86250	
	Voice 25KHz	341-344	766.13750	796.13750	
	Voice 25KHz	345-348	766.16250	796.16250	Campus
	Voice 25KHz	369-372	766.31250	796.31250	Campus
	Voice 25KHz	381-384	766.38750	796.38750	
	Voice 25KHz	425-428	766.66250	796.66250	
	Voice 25KHz	477-480	766.98750	796.98750	Campus
	Voice 25KHz	497-500	773.11250	803.11250	
	Voice 25KHz	501-504	773.13750	803.13750	Campus
	Voice 25KHz	541-544	773.38750	803.38750	Campus
	Voice 25KHz	565-568	773.53750	803.53750	Campus
	Voice 25KHz	569-572	773.56250	803.56250	
	Voice 25KHz	785-788	774.91250	804.91250	Campus
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	

Bollinger	Voice 25KHz	41-44	764.26250	794.26250
	Voice 25KHz	177-180	765.11250	795.11250
	Voice 25KHz	357-360	766.23750	796.23750
	Voice 25KHz	517-520	773.23750	803.23750
	Voice 25KHz	829-832	775.18750	805.18750
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
	Data 50KHz	76	770.77500	800.77500
	Data 50KHz	77	770.82500	800.82500
	Data 50KHz	78	770.87500	800.87500
Boone	Voice 25KHz	41-44	764.26250	794.26250
	Voice 25KHz	81-84	764.51250	794.51250
	Voice 25KHz	137-140	764.86250	794.86250
	Voice 25KHz	177-180	765.11250	795.11250
	Voice 25KHz	217-220	765.36250	795.36250
	Voice 25KHz	257-260	765.61250	795.61250
	Voice 25KHz	297-300	765.86250	795.86250
	Voice 25KHz	349-352	766.18750	796.18750
	Voice 25KHz	389-392	766.43750	796.43750
	Voice 25KHz	437-440	766.73750	796.73750
	Voice 25KHz	477-480	766.98750	796.98750
	Voice 25KHz	501-504	773.13750	803.13750
	Voice 25KHz	549-552	773.43750	803.43750
	Voice 25KHz	625-628	773.91250	803.91250
	Voice 25KHz	665-668	774.16250	804.16250
	Voice 25KHz	713-716	774.46250	804.46250
	Voice 25KHz	785-788	774.91250	804.91250
	Voice 25KHz	833-836	775.21250	805.21250
	Voice 25KHz	873-876	775.46250	805.46250
	Voice 25KHz	913-916	775.71250	805.71250
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Buchanan	Voice 25KHz	121-124	764.76250	794.76250
	Voice 25KHz	161-164	765.01250	795.01250
	Voice 25KHz	201-204	765.26250	795.26250
	Voice 25KHz	253-256	765.58750	795.58750
	Voice 25KHz	333-336	766.08750	796.08750
	Voice 25KHz	389-392	766.43750	796.43750
	Voice 25KHz	473-476	766.96250	796.96250
	Voice 25KHz	497-500	773.11250	803.11250
	Voice 25KHz	537-540	773.36250	803.36250
	Voice 25KHz	577-580	773.61250	803.61250
	Voice 25KHz	633-636	773.96250	803.96250
	Voice 25KHz	749-752	774.68750	804.68750
	Voice 25KHz	789-792	774.93750	804.93750
	Voice 25KHz	913-916	775.71250	805.71250
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500

	Data 50KHz	40	768.97500	798.97500	
	Data 50KHz	41	769.02500	799.02500	
	Data 50KHz	42	769.07500	799.07500	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
	Data 50KHz	72	770.57500	800.57500	
Butler	Voice 25KHz	45-48	764.28750	794.28750	
	Voice 25KHz	133-136	764.83750	794.83750	
	Voice 25KHz	201-204	765.26250	795.26250	
	Voice 25KHz	249-252	765.56250	795.56250	
	Voice 25KHz	345-348	766.16250	796.16250	
	Voice 25KHz	445-448	766.78750	796.78750	
	Voice 25KHz	501-504	773.13750	803.13750	
	Voice 25KHz	545-548	773.41250	803.41250	
	Voice 25KHz	609-612	773.81250	803.81250	
	Voice 25KHz	713-716	774.46250	804.46250	
	Voice 25KHz	785-788	774.91250	804.91250	
	Voice 25KHz	833-836	775.21250	805.21250	
	Voice 25KHz	905-908	775.66250	805.66250	
	Data 50KHz	43	769.12500	799.12500	
	Data 50KHz	44	769.17500	799.17500	
	Data 50KHz	45	769.22500	799.22500	
	Data 50KHz	88	771.37500	801.37500	
	Data 50KHz	89	771.42500	801.42500	
	Data 50KHz	90	771.47500	801.47500	
Caldwell	Voice 25KHz	89-92	764.56250	794.56250	
	Voice 25KHz	349-352	766.18750	796.18750	Campus
	Voice 25KHz	393-396	766.46250	796.46250	
	Voice 25KHz	465-468	766.91250	796.91250	
	Voice 25KHz	489-492	773.06250	803.06250	
	Voice 25KHz	553-556	773.46250	803.46250	
	Voice 25KHz	557-560	773.48750	803.48750	Campus
	Voice 25KHz	613-616	773.83750	803.83750	Campus
	Voice 25KHz	781-784	774.88750	804.88750	
	Voice 25KHz	909-912	775.68750	805.68750	
	Voice 25KHz	941-944	775.88750	805.88750	Campus
	Data 50KHz	40	768.97500	798.97500	
	Data 50KHz	41	769.02500	799.02500	
	Data 50KHz	42	769.07500	799.07500	
	Data 50KHz	58	769.87500	799.87500	
	Data 50KHz	59	769.92500	799.92500	
	Data 50KHz	60	769.97500	799.97500	
Callaway	Voice 25KHz	17-20	764.11250	794.11250	
	Voice 25KHz	89-92	764.56250	794.56250	
	Voice 25KHz	165-168	765.03750	795.03750	
	Voice 25KHz	209-212	765.31250	795.31250	
	Voice 25KHz	321-324	766.01250	796.01250	
	Voice 25KHz	369-372	766.31250	796.31250	
	Voice 25KHz	457-460	766.86250	796.86250	
	Voice 25KHz	481-484	773.01250	803.01250	
	Voice 25KHz	521-524	773.26250	803.26250	
	Voice 25KHz	565-568	773.53750	803.53750	
	Voice 25KHz	609-612	773.81250	803.81250	

	Voice 25KHz	677-680	774.23750	804.23750
	Voice 25KHz	753-756	774.71250	804.71250
	Voice 25KHz	793-796	774.96250	804.96250
	Data 50KHz	40	768.97500	798.97500
	Data 50KHz	41	769.02500	799.02500
	Data 50KHz	42	769.07500	799.07500
	Data 50KHz	58	769.87500	799.87500
	Data 50KHz	59	769.92500	799.92500
	Data 50KHz	60	769.97500	799.97500
Camden	Voice 25KHz	13-16	764.08750	794.08750
	Voice 25KHz	177-180	765.11250	795.11250
	Voice 25KHz	217-220	765.36250	795.36250
	Voice 25KHz	333-336	766.08750	796.08750
	Voice 25KHz	389-392	766.43750	796.43750
	Voice 25KHz	441-444	766.76250	796.76250
	Voice 25KHz	489-492	773.06250	803.06250
	Voice 25KHz	549-552	773.43750	803.43750
	Voice 25KHz	601-604	773.76250	803.76250
	Voice 25KHz	661-664	774.13750	804.13750
	Voice 25KHz	821-824	775.13750	805.13750
	Voice 25KHz	861-864	775.38750	805.38750
	Voice 25KHz	909-912	775.68750	805.68750
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Cape Girardeau	Voice 25KHz	81-84	764.51250	794.51250
	Voice 25KHz	121-124	764.76250	794.76250
	Voice 25KHz	165-168	765.03750	795.03750
	Voice 25KHz	205-208	765.28750	795.28750
	Voice 25KHz	253-256	765.58750	795.58750
	Voice 25KHz	321-324	766.01250	796.01250
	Voice 25KHz	369-372	766.31250	796.31250
	Voice 25KHz	409-412	766.56250	796.56250
	Voice 25KHz	449-452	766.81250	796.81250
	Voice 25KHz	489-492	773.06250	803.06250
	Voice 25KHz	529-532	773.31250	803.31250
	Voice 25KHz	569-572	773.56250	803.56250
	Voice 25KHz	621-624	773.88750	803.88750
	Voice 25KHz	717-720	774.48750	804.48750
	Voice 25KHz	757-760	774.73750	804.73750
	Voice 25KHz	821-824	775.13750	805.13750
	Voice 25KHz	869-872	775.43750	805.43750
	Voice 25KHz	917-920	775.73750	805.73750
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
	Data 50KHz	55	769.72500	799.72500

	Data 50KHz	56	769.77500	799.77500	
	Data 50KHz	57	769.82500	799.82500	
Carroll	Voice 25KHz	165-168	765.03750	795.03750	
	Voice 25KHz	213-216	765.33750	795.33750	
	Voice 25KHz	353-356	766.21250	796.21250	
	Voice 25KHz	409-412	766.56250	796.56250	
	Voice 25KHz	521-524	773.26250	803.26250	
	Voice 25KHz	569-572	773.56250	803.56250	
	Voice 25KHz	625-628	773.91250	803.91250	
	Voice 25KHz	713-716	774.46250	804.46250	
	Voice 25KHz	869-872	775.43750	805.43750	
	Data 50KHz	61	770.02500	800.02500	
	Data 50KHz	62	770.07500	800.07500	
	Data 50KHz	63	770.12500	800.12500	
	Data 50KHz	76	770.77500	800.77500	
	Data 50KHz	77	770.82500	800.82500	
	Data 50KHz	78	770.87500	800.87500	
Carter	Voice 25KHz	93-96	764.58750	794.58750	
	Voice 25KHz	369-372	766.31250	796.31250	
	Voice 25KHz	409-412	766.56250	796.56250	
	Voice 25KHz	529-532	773.31250	803.31250	
	Voice 25KHz	629-632	773.93750	803.93750	
	Voice 25KHz	705-708	774.41250	804.41250	
	Voice 25KHz	873-876	775.46250	805.46250	
	Data 50KHz	67	770.32500	800.32500	
	Data 50KHz	68	770.37500	800.37500	
	Data 50KHz	69	770.42500	800.42500	
	Data 50KHz	85	771.22500	801.22500	
	Data 50KHz	86	771.27500	801.27500	
	Data 50KHz	87	771.32500	801.32500	
Cass	Voice 25KHz	137-140	764.86250	794.86250	
	Voice 25KHz	245-248	765.53750	795.53750	
	Voice 25KHz	349-352	766.18750	796.18750	
	Voice 25KHz	389-392	766.43750	796.43750	
	Voice 25KHz	393-396	766.46250	796.46250	Campus
	Voice 25KHz	441-444	766.76250	796.76250	
	Voice 25KHz	489-492	773.06250	803.06250	
	Voice 25KHz	553-556	773.46250	803.46250	Campus
	Voice 25KHz	565-568	773.53750	803.53750	
	Voice 25KHz	597-600	773.73750	803.73750	Campus
	Voice 25KHz	605-608	773.78750	803.78750	
	Voice 25KHz	661-664	774.13750	804.13750	
	Voice 25KHz	861-864	775.38750	805.38750	Campus
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
	Data 50KHz	72	770.57500	800.57500	
Cedar	Voice 25KHz	249-252	765.56250	795.56250	
	Voice 25KHz	293-296	765.83750	795.83750	
	Voice 25KHz	421-424	766.63750	796.63750	



	Voice 25KHz	461-464	766.88750	796.88750	
	Voice 25KHz	625-628	773.91250	803.91250	
	Voice 25KHz	749-752	774.68750	804.68750	
	Voice 25KHz	917-920	775.73750	805.73750	
	Data 50KHz	40	768.97500	798.97500	
	Data 50KHz	41	769.02500	799.02500	
	Data 50KHz	42	769.07500	799.07500	
	Data 50KHz	58	769.87500	799.87500	
	Data 50KHz	59	769.92500	799.92500	
	Data 50KHz	60	769.97500	799.97500	
Chariton	Voice 25KHz	333-336	766.08750	796.08750	
	Voice 25KHz	377-380	766.36250	796.36250	
	Voice 25KHz	441-444	766.76250	796.76250	
	Voice 25KHz	585-588	773.66250	803.66250	
	Voice 25KHz	661-664	774.13750	804.13750	
	Voice 25KHz	701-704	774.38750	804.38750	
	Voice 25KHz	789-792	774.93750	804.93750	
	Voice 25KHz	905-908	775.66250	805.66250	
	Data 50KHz	34	768.67500	798.67500	
	Data 50KHz	35	768.72500	798.72500	
	Data 50KHz	36	768.77500	798.77500	
Christian	Voice 25KHz	57-60	764.36250	794.36250	
	Voice 25KHz	209-212	765.31250	795.31250	
	Voice 25KHz	345-348	766.16250	796.16250	
	Voice 25KHz	385-388	766.41250	796.41250	
	Voice 25KHz	425-428	766.66250	796.66250	
	Voice 25KHz	493-496	773.08750	803.08750	
	Voice 25KHz	553-556	773.46250	803.46250	
	Voice 25KHz	593-596	773.71250	803.71250	
	Voice 25KHz	673-676	774.21250	804.21250	
	Voice 25KHz	757-760	774.73750	804.73750	
	Voice 25KHz	837-840	775.23750	805.23750	
	Voice 25KHz	877-880	775.48750	805.48750	
	Data 50KHz	49	769.42500	799.42500	
	Data 50KHz	50	769.47500	799.47500	
	Data 50KHz	51	769.52500	799.52500	
	Data 50KHz	85	771.22500	801.22500	
	Data 50KHz	86	771.27500	801.27500	
	Data 50KHz	87	771.32500	801.32500	
Clark	Voice 25KHz	205-208	765.28750	795.28750	
	Voice 25KHz	389-392	766.43750	796.43750	
	Voice 25KHz	441-444	766.76250	796.76250	
	Voice 25KHz	545-548	773.41250	803.41250	
	Voice 25KHz	585-588	773.66250	803.66250	
	Voice 25KHz	665-668	774.16250	804.16250	
	Voice 25KHz	745-748	774.66250	804.66250	
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
Clay	Voice 25KHz	129-132	764.81250	794.81250	Campus
	Voice 25KHz	133-136	764.83750	794.83750	
	Voice 25KHz	241-244	765.51250	795.51250	

	Voice 25KHz	289-292	765.81250	795.81250	
	Voice 25KHz	345-348	766.16250	796.16250	
	Voice 25KHz	405-408	766.53750	796.53750	
	Voice 25KHz	445-448	766.78750	796.78750	
	Voice 25KHz	517-520	773.23750	803.23750	
	Voice 25KHz	561-564	773.51250	803.51250	
	Voice 25KHz	593-596	773.71250	803.71250	Campus
	Voice 25KHz	601-604	773.76250	803.76250	
	Voice 25KHz	665-668	774.16250	804.16250	
	Data 50KHz	34	768.67500	798.67500	
	Data 50KHz	35	768.72500	798.72500	
	Data 50KHz	36	768.77500	798.77500	
	Data 50KHz	49	769.42500	799.42500	
	Data 50KHz	50	769.47500	799.47500	
	Data 50KHz	51	769.52500	799.52500	
	Data 50KHz	55	769.72500	799.72500	
	Data 50KHz	56	769.77500	799.77500	
	Data 50KHz	57	769.82500	799.82500	
Clinton	Voice 25KHz	41-44	764.26250	794.26250	
	Voice 25KHz	81-84	764.51250	794.51250	
	Voice 25KHz	377-380	766.36250	796.36250	
	Voice 25KHz	509-512	773.18750	803.18750	
	Voice 25KHz	585-588	773.66250	803.66250	
	Voice 25KHz	709-712	774.43750	804.43750	
	Voice 25KHz	821-824	775.13750	805.13750	
	Voice 25KHz	901-904	775.63750	805.63750	
	Data 50KHz	64	770.17500	800.17500	
	Data 50KHz	65	770.22500	800.22500	
	Data 50KHz	66	770.27500	800.27500	
	Data 50KHz	79	770.92500	800.92500	
	Data 50KHz	80	770.97500	800.97500	
	Data 50KHz	81	771.02500	801.02500	
Cole	Voice 25KHz	49-52	764.31250	794.31250	
	Voice 25KHz	125-128	764.78750	794.78750	
	Voice 25KHz	201-204	765.26250	795.26250	
	Voice 25KHz	249-252	765.56250	795.56250	
	Voice 25KHz	289-292	765.81250	795.81250	
	Voice 25KHz	361-364	766.26250	796.26250	
	Voice 25KHz	409-412	766.56250	796.56250	
	Voice 25KHz	449-452	766.81250	796.81250	
	Voice 25KHz	493-496	773.08750	803.08750	
	Voice 25KHz	541-544	773.38750	803.38750	
	Voice 25KHz	585-588	773.66250	803.66250	
	Voice 25KHz	637-640	773.98750	803.98750	
	Voice 25KHz	701-704	774.38750	804.38750	
	Voice 25KHz	745-748	774.66250	804.66250	
	Voice 25KHz	825-828	775.16250	805.16250	
	Voice 25KHz	865-868	775.41250	805.41250	
	Voice 25KHz	905-908	775.66250	805.66250	
	Voice 25KHz	945-948	775.91250	805.91250	
	Data 50KHz	34	768.67500	798.67500	
	Data 50KHz	35	768.72500	798.72500	
	Data 50KHz	36	768.77500	798.77500	
	Data 50KHz	55	769.72500	799.72500	

	Data 50KHz	56	769.77500	799.77500	
	Data 50KHz	57	769.82500	799.82500	
Cooper	Voice 25KHz	205-208	765.28750	795.28750	
	Voice 25KHz	281-284	765.76250	795.76250	
	Voice 25KHz	405-408	766.53750	796.53750	
	Voice 25KHz	445-448	766.78750	796.78750	
	Voice 25KHz	517-520	773.23750	803.23750	
	Voice 25KHz	589-592	773.68750	803.68750	
	Voice 25KHz	673-676	774.21250	804.21250	
	Voice 25KHz	749-752	774.68750	804.68750	
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
	Data 50KHz	72	770.57500	800.57500	
Crawford	Voice 25KHz	85-88	764.53750	794.53750	
	Voice 25KHz	205-208	765.28750	795.28750	
	Voice 25KHz	297-300	765.86250	795.86250	
	Voice 25KHz	385-388	766.41250	796.41250	
	Voice 25KHz	441-444	766.76250	796.76250	
	Voice 25KHz	497-500	773.11250	803.11250	
	Voice 25KHz	545-548	773.41250	803.41250	
	Voice 25KHz	601-604	773.76250	803.76250	
	Voice 25KHz	821-824	775.13750	805.13750	
	Voice 25KHz	869-872	775.43750	805.43750	
	Voice 25KHz	909-912	775.68750	805.68750	
	Data 50KHz	67	770.32500	800.32500	
	Data 50KHz	68	770.37500	800.37500	
	Data 50KHz	69	770.42500	800.42500	
	Data 50KHz	85	771.22500	801.22500	
	Data 50KHz	86	771.27500	801.27500	
	Data 50KHz	87	771.32500	801.32500	
Dade	Voice 25KHz	13-16	764.08750	794.08750	
	Voice 25KHz	381-384	766.38750	796.38750	
	Voice 25KHz	429-432	766.68750	796.68750	
	Voice 25KHz	489-492	773.06250	803.06250	
	Voice 25KHz	525-528	773.28750	803.28750	Campus
	Voice 25KHz	561-564	773.51250	803.51250	
	Voice 25KHz	613-616	773.83750	803.83750	Campus
	Voice 25KHz	709-712	774.43750	804.43750	Campus
	Data 50KHz	34	768.67500	798.67500	
	Data 50KHz	35	768.72500	798.72500	
	Data 50KHz	36	768.77500	798.77500	
	Data 50KHz	55	769.72500	799.72500	
	Data 50KHz	56	769.77500	799.77500	
	Data 50KHz	57	769.82500	799.82500	
Dallas	Voice 25KHz	357-360	766.23750	796.23750	
	Voice 25KHz	405-408	766.53750	796.53750	
	Voice 25KHz	465-468	766.91250	796.91250	
	Voice 25KHz	589-592	773.68750	803.68750	
	Voice 25KHz	677-680	774.23750	804.23750	

	Voice 25KHz	753-756	774.71250	804.71250	
	Voice 25KHz	833-836	775.21250	805.21250	
	Data 50KHz	64	770.17500	800.17500	
	Data 50KHz	65	770.22500	800.22500	
	Data 50KHz	66	770.27500	800.27500	
Daviess	Voice 25KHz	125-128	764.78750	794.78750	
	Voice 25KHz	209-212	765.31250	795.31250	
	Voice 25KHz	285-288	765.78750	795.78750	
	Voice 25KHz	341-344	766.13750	796.13750	
	Voice 25KHz	385-388	766.41250	796.41250	
	Voice 25KHz	449-452	766.81250	796.81250	
	Voice 25KHz	501-504	773.13750	803.13750	
	Voice 25KHz	573-576	773.58750	803.58750	
	Voice 25KHz	617-620	773.86250	803.86250	
	Voice 25KHz	741-744	774.63750	804.63750	
	Data 50KHz	67	770.32500	800.32500	
	Data 50KHz	68	770.37500	800.37500	
	Data 50KHz	69	770.42500	800.42500	
De Kalb	Voice 25KHz	13-16	764.08750	794.08750	
	Voice 25KHz	53-56	764.33750	794.33750	
	Voice 25KHz	369-372	766.31250	796.31250	
	Voice 25KHz	421-424	766.63750	796.63750	
	Voice 25KHz	565-568	773.53750	803.53750	
	Voice 25KHz	605-608	773.78750	803.78750	
	Voice 25KHz	757-760	774.73750	804.73750	
	Voice 25KHz	837-840	775.23750	805.23750	
	Voice 25KHz	877-880	775.48750	805.48750	
	Data 50KHz	49	769.42500	799.42500	
	Data 50KHz	50	769.47500	799.47500	
	Data 50KHz	51	769.52500	799.52500	
Dent	Voice 25KHz	121-124	764.76250	794.76250	
	Voice 25KHz	289-292	765.81250	795.81250	
	Voice 25KHz	337-340	766.11250	796.11250	
	Voice 25KHz	341-344	766.13750	796.13750	Campus
	Voice 25KHz	401-404	766.51250	796.51250	
	Voice 25KHz	465-468	766.91250	796.91250	
	Voice 25KHz	481-484	773.01250	803.01250	Campus
	Voice 25KHz	525-528	773.28750	803.28750	Campus
	Voice 25KHz	573-576	773.58750	803.58750	Campus
	Voice 25KHz	581-584	773.63750	803.63750	
	Voice 25KHz	677-680	774.23750	804.23750	
	Voice 25KHz	749-752	774.68750	804.68750	Campus
	Voice 25KHz	753-756	774.71250	804.71250	Campus
	Voice 25KHz	825-828	775.16250	805.16250	Campus
	Voice 25KHz	833-836	775.21250	805.21250	
	Voice 25KHz	913-916	775.71250	805.71250	Campus
	Voice 25KHz	945-948	775.91250	805.91250	
	Data 50KHz	40	768.97500	798.97500	
	Data 50KHz	41	769.02500	799.02500	
	Data 50KHz	42	769.07500	799.07500	
Douglas	Voice 25KHz	45-48	764.28750	794.28750	
	Voice 25KHz	353-356	766.21250	796.21250	

	Voice 25KHz	409-412	766.56250	796.56250
	Voice 25KHz	469-472	766.93750	796.93750
	Voice 25KHz	525-528	773.28750	803.28750
	Voice 25KHz	629-632	773.93750	803.93750
	Voice 25KHz	829-832	775.18750	805.18750
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Dunklin	Voice 25KHz	173-176	765.08750	795.08750
	Voice 25KHz	365-368	766.28750	796.28750
	Voice 25KHz	405-408	766.53750	796.53750
	Voice 25KHz	513-516	773.21250	803.21250
	Voice 25KHz	553-556	773.46250	803.46250
	Voice 25KHz	593-596	773.71250	803.71250
	Voice 25KHz	741-744	774.63750	804.63750
	Voice 25KHz	797-800	774.98750	804.98750
	Voice 25KHz	865-868	775.41250	805.41250
	Voice 25KHz	913-916	775.71250	805.71250
	Data 50KHz	70	770.47500	800.47500
	Data 50KHz	71	770.52500	800.52500
	Data 50KHz	72	770.57500	800.57500
Franklin	Voice 25KHz	129-132	764.81250	794.81250
	Voice 25KHz	349-352	766.18750	796.18750
	Voice 25KHz	397-400	766.48750	796.48750
	Voice 25KHz	461-464	766.88750	796.88750
	Voice 25KHz	529-532	773.31250	803.31250
	Voice 25KHz	577-580	773.61250	803.61250
	Voice 25KHz	621-624	773.88750	803.88750
	Voice 25KHz	669-672	774.18750	804.18750
	Voice 25KHz	837-840	775.23750	805.23750
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	55	769.72500	799.72500
	Data 50KHz	56	769.77500	799.77500
	Data 50KHz	57	769.82500	799.82500
Gasconade	Voice 25KHz	285-288	765.78750	795.78750
	Voice 25KHz	357-360	766.23750	796.23750
	Voice 25KHz	405-408	766.53750	796.53750
	Voice 25KHz	469-472	766.93750	796.93750
	Voice 25KHz	589-592	773.68750	803.68750
	Voice 25KHz	717-720	774.48750	804.48750
	Voice 25KHz	941-944	775.88750	805.88750
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
	Data 50KHz	76	770.77500	800.77500

	Data 50KHz	77	770.82500	800.82500	
	Data 50KHz	78	770.87500	800.87500	
Gentry	Voice 25KHz	165-168	765.03750	795.03750	
	Voice 25KHz	329-332	766.06250	796.06250	
	Voice 25KHz	477-480	766.98750	796.98750	
	Voice 25KHz	493-496	773.08750	803.08750	
	Voice 25KHz	561-564	773.51250	803.51250	Campus
	Voice 25KHz	581-584	773.63750	803.63750	
	Voice 25KHz	829-832	775.18750	805.18750	
	Voice 25KHz	905-908	775.66250	805.66250	
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
Greene	Voice 25KHz	41-44	764.26250	794.26250	
	Voice 25KHz	81-84	764.51250	794.51250	
	Voice 25KHz	121-124	764.76250	794.76250	
	Voice 25KHz	161-164	765.01250	795.01250	
	Voice 25KHz	201-204	765.26250	795.26250	
	Voice 25KHz	241-244	765.51250	795.51250	
	Voice 25KHz	281-284	765.76250	795.76250	
	Voice 25KHz	325-328	766.03750	796.03750	
	Voice 25KHz	365-368	766.28750	796.28750	
	Voice 25KHz	413-416	766.58750	796.58750	
	Voice 25KHz	477-480	766.98750	796.98750	
	Voice 25KHz	501-504	773.13750	803.13750	
	Voice 25KHz	541-544	773.38750	803.38750	
	Voice 25KHz	581-584	773.63750	803.63750	
	Voice 25KHz	633-636	773.96250	803.96250	
	Voice 25KHz	705-708	774.41250	804.41250	
	Voice 25KHz	745-748	774.66250	804.66250	
	Voice 25KHz	785-788	774.91250	804.91250	
	Voice 25KHz	825-828	775.16250	805.16250	
	Voice 25KHz	865-868	775.41250	805.41250	
	Voice 25KHz	905-908	775.66250	805.66250	
	Voice 25KHz	945-948	775.91250	805.91250	
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
	Data 50KHz	52	769.57500	799.57500	
	Data 50KHz	53	769.62500	799.62500	
	Data 50KHz	54	769.67500	799.67500	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
	Data 50KHz	72	770.57500	800.57500	
Grundy	Voice 25KHz	85-88	764.53750	794.53750	
	Voice 25KHz	161-164	765.01250	795.01250	
	Voice 25KHz	217-220	765.36250	795.36250	
	Voice 25KHz	357-360	766.23750	796.23750	
	Voice 25KHz	413-416	766.58750	796.58750	
	Voice 25KHz	525-528	773.28750	803.28750	
	Voice 25KHz	589-592	773.68750	803.68750	
	Voice 25KHz	629-632	773.93750	803.93750	
	Voice 25KHz	669-672	774.18750	804.18750	

	Voice 25KHz	797-800	774.98750	804.98750
	Data 50KHz	43	769.12500	799.12500
	Data 50KHz	44	769.17500	799.17500
	Data 50KHz	45	769.22500	799.22500
Harrison	Voice 25KHz	57-60	764.36250	794.36250
	Voice 25KHz	133-136	764.83750	794.83750
	Voice 25KHz	241-244	765.51250	795.51250
	Voice 25KHz	321-324	766.01250	796.01250
	Voice 25KHz	365-368	766.28750	796.28750
	Voice 25KHz	425-428	766.66250	796.66250
	Voice 25KHz	517-520	773.23750	803.23750
	Voice 25KHz	637-640	773.98750	803.98750
	Voice 25KHz	717-720	774.48750	804.48750
	Voice 25KHz	873-876	775.46250	805.46250
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
Henry	Voice 25KHz	41-44	764.26250	794.26250
	Voice 25KHz	321-324	766.01250	796.01250
	Voice 25KHz	365-368	766.28750	796.28750
	Voice 25KHz	457-460	766.86250	796.86250
	Voice 25KHz	529-532	773.31250	803.31250
	Voice 25KHz	585-588	773.66250	803.66250
	Voice 25KHz	637-640	773.98750	803.98750
	Voice 25KHz	701-704	774.38750	804.38750
	Voice 25KHz	829-832	775.18750	805.18750
	Voice 25KHz	941-944	775.88750	805.88750
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
	Data 50KHz	55	769.72500	799.72500
	Data 50KHz	56	769.77500	799.77500
	Data 50KHz	57	769.82500	799.82500
Hickory	Voice 25KHz	137-140	764.86250	794.86250
	Voice 25KHz	205-208	765.28750	795.28750
	Voice 25KHz	505-508	773.16250	803.16250
	Voice 25KHz	557-560	773.48750	803.48750
	Voice 25KHz	617-620	773.86250	803.86250
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Holt	Voice 25KHz	297-300	765.86250	795.86250
	Voice 25KHz	405-408	766.53750	796.53750
	Voice 25KHz	469-472	766.93750	796.93750
	Voice 25KHz	517-520	773.23750	803.23750
	Voice 25KHz	573-576	773.58750	803.58750
	Voice 25KHz	629-632	773.93750	803.93750
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500

	Data 50KHz	69	770.42500	800.42500	
Howard	Voice 25KHz	129-132	764.81250	794.81250	
	Voice 25KHz	169-172	765.06250	795.06250	
	Voice 25KHz	365-368	766.28750	796.28750	
	Voice 25KHz	485-488	773.03750	803.03750	
	Voice 25KHz	525-528	773.28750	803.28750	
	Voice 25KHz	573-576	773.58750	803.58750	
	Voice 25KHz	757-760	774.73750	804.73750	
	Data 50KHz	43	769.12500	799.12500	
	Data 50KHz	44	769.17500	799.17500	
	Data 50KHz	45	769.22500	799.22500	
Howell	Voice 25KHz	53-56	764.33750	794.33750	
	Voice 25KHz	97-100	764.61250	794.61250	
	Voice 25KHz	169-172	765.06250	795.06250	
	Voice 25KHz	217-220	765.36250	795.36250	
	Voice 25KHz	285-288	765.78750	795.78750	
	Voice 25KHz	333-336	766.08750	796.08750	
	Voice 25KHz	381-384	766.38750	796.38750	
	Voice 25KHz	457-460	766.86250	796.86250	
	Voice 25KHz	505-508	773.16250	803.16250	
	Voice 25KHz	545-548	773.41250	803.41250	
	Voice 25KHz	589-592	773.68750	803.68750	
	Voice 25KHz	661-664	774.13750	804.13750	
	Voice 25KHz	717-720	774.48750	804.48750	
	Voice 25KHz	785-788	774.91250	804.91250	
	Voice 25KHz	905-908	775.66250	805.66250	
	Data 50KHz	43	769.12500	799.12500	
	Data 50KHz	44	769.17500	799.17500	
	Data 50KHz	45	769.22500	799.22500	
	Data 50KHz	88	771.37500	801.37500	
	Data 50KHz	89	771.42500	801.42500	
	Data 50KHz	90	771.47500	801.47500	
Iron	Voice 25KHz	217-220	765.36250	795.36250	
	Voice 25KHz	353-356	766.21250	796.21250	
	Voice 25KHz	417-420	766.61250	796.61250	
	Voice 25KHz	553-556	773.46250	803.46250	
	Voice 25KHz	557-560	773.48750	803.48750	Campus
	Voice 25KHz	625-628	773.91250	803.91250	Campus
	Voice 25KHz	633-636	773.96250	803.96250	
	Voice 25KHz	789-792	774.93750	804.93750	
	Voice 25KHz	877-880	775.48750	805.48750	Campus
	Voice 25KHz	905-908	775.66250	805.66250	Campus
	Voice 25KHz	917-920	775.73750	805.73750	Campus
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
	Data 50KHz	72	770.57500	800.57500	
Jackson	Voice 25KHz	45-48	764.28750	794.28750	
	Voice 25KHz	85-88	764.53750	794.53750	
	Voice 25KHz	125-128	764.78750	794.78750	



Voice 25KHz	177-180	765.11250	795.11250
Voice 25KHz	217-220	765.36250	795.36250
Voice 25KHz	257-260	765.61250	795.61250
Voice 25KHz	297-300	765.86250	795.86250
Voice 25KHz	337-340	766.11250	796.11250
Voice 25KHz	381-384	766.38750	796.38750
Voice 25KHz	429-432	766.68750	796.68750
Voice 25KHz	469-472	766.93750	796.93750
Voice 25KHz	501-504	773.13750	803.13750
Voice 25KHz	549-552	773.43750	803.43750
Voice 25KHz	589-592	773.68750	803.68750
Voice 25KHz	629-632	773.93750	803.93750
Voice 25KHz	705-708	774.41250	804.41250
Voice 25KHz	745-748	774.66250	804.66250
Voice 25KHz	785-788	774.91250	804.91250
Voice 25KHz	825-828	775.16250	805.16250
Voice 25KHz	865-868	775.41250	805.41250
Voice 25KHz	905-908	775.66250	805.66250
Voice 25KHz	945-948	775.91250	805.91250
Data 50KHz	43	769.12500	799.12500
Data 50KHz	44	769.17500	799.17500
Data 50KHz	45	769.22500	799.22500
Data 50KHz	67	770.32500	800.32500
Data 50KHz	68	770.37500	800.37500
Data 50KHz	69	770.42500	800.42500
Data 50KHz	88	771.37500	801.37500
Data 50KHz	89	771.42500	801.42500
Data 50KHz	90	771.47500	801.47500

Jasper

Voice 25KHz	45-48	764.28750	794.28750
Voice 25KHz	89-92	764.56250	794.56250
Voice 25KHz	137-140	764.86250	794.86250
Voice 25KHz	177-180	765.11250	795.11250
Voice 25KHz	217-220	765.36250	795.36250
Voice 25KHz	297-300	765.86250	795.86250
Voice 25KHz	341-344	766.13750	796.13750
Voice 25KHz	405-408	766.53750	796.53750
Voice 25KHz	469-472	766.93750	796.93750
Voice 25KHz	505-508	773.16250	803.16250
Voice 25KHz	545-548	773.41250	803.41250
Voice 25KHz	585-588	773.66250	803.66250
Voice 25KHz	629-632	773.93750	803.93750
Voice 25KHz	677-680	774.23750	804.23750
Voice 25KHz	741-744	774.63750	804.63750
Voice 25KHz	781-784	774.88750	804.88750
Voice 25KHz	833-836	775.21250	805.21250
Voice 25KHz	873-876	775.46250	805.46250
Voice 25KHz	913-916	775.71250	805.71250
Data 50KHz	49	769.42500	799.42500
Data 50KHz	50	769.47500	799.47500
Data 50KHz	51	769.52500	799.52500
Data 50KHz	61	770.02500	800.02500
Data 50KHz	62	770.07500	800.07500
Data 50KHz	63	770.12500	800.12500
Data 50KHz	76	770.77500	800.77500
Data 50KHz	77	770.82500	800.82500

	Data 50KHz	78	770.87500	800.87500
Jefferson	Voice 25KHz	137-140	764.86250	794.86250
	Voice 25KHz	341-344	766.13750	796.13750
	Voice 25KHz	389-392	766.43750	796.43750
	Voice 25KHz	437-440	766.73750	796.73750
	Voice 25KHz	501-504	773.13750	803.13750
	Voice 25KHz	549-552	773.43750	803.43750
	Voice 25KHz	593-596	773.71250	803.71250
	Voice 25KHz	637-640	773.98750	803.98750
	Voice 25KHz	709-712	774.43750	804.43750
	Voice 25KHz	825-828	775.16250	805.16250
	Voice 25KHz	873-876	775.46250	805.46250
	Voice 25KHz	913-916	775.71250	805.71250
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
	Data 50KHz	52	769.57500	799.57500
	Data 50KHz	53	769.62500	799.62500
	Data 50KHz	54	769.67500	799.67500
	Data 50KHz	70	770.47500	800.47500
	Data 50KHz	71	770.52500	800.52500
	Data 50KHz	72	770.57500	800.57500
Johnson	Voice 25KHz	161-164	765.01250	795.01250
	Voice 25KHz	209-212	765.31250	795.31250
	Voice 25KHz	285-288	765.78750	795.78750
	Voice 25KHz	357-360	766.23750	796.23750
	Voice 25KHz	401-404	766.51250	796.51250
	Voice 25KHz	449-452	766.81250	796.81250
	Voice 25KHz	513-516	773.21250	803.21250
	Voice 25KHz	577-580	773.61250	803.61250
	Voice 25KHz	669-672	774.18750	804.18750
	Voice 25KHz	753-756	774.71250	804.71250
	Voice 25KHz	793-796	774.96250	804.96250
	Voice 25KHz	873-876	775.46250	805.46250
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
	Data 50KHz	79	770.92500	800.92500
	Data 50KHz	80	770.97500	800.97500
	Data 50KHz	81	771.02500	801.02500
Knox	Voice 25KHz	361-364	766.26250	796.26250
	Voice 25KHz	417-420	766.61250	796.61250
	Voice 25KHz	465-468	766.91250	796.91250
	Voice 25KHz	485-488	773.03750	803.03750
	Voice 25KHz	673-676	774.21250	804.21250
	Data 50KHz	43	769.12500	799.12500
	Data 50KHz	44	769.17500	799.17500
	Data 50KHz	45	769.22500	799.22500
Laclede	Voice 25KHz	89-92	764.56250	794.56250
	Voice 25KHz	165-168	765.03750	795.03750
	Voice 25KHz	293-296	765.83750	795.83750
	Voice 25KHz	429-432	766.68750	796.68750

	Voice 25KHz	481-484	773.01250	803.01250	
	Voice 25KHz	529-532	773.31250	803.31250	
	Voice 25KHz	577-580	773.61250	803.61250	
	Voice 25KHz	625-628	773.91250	803.91250	
	Voice 25KHz	741-744	774.63750	804.63750	
	Voice 25KHz	789-792	774.93750	804.93750	
	Voice 25KHz	901-904	775.63750	805.63750	
	Voice 25KHz	941-944	775.88750	805.88750	
	Data 50KHz	40	768.97500	798.97500	
	Data 50KHz	41	769.02500	799.02500	
	Data 50KHz	42	769.07500	799.07500	
	Data 50KHz	58	769.87500	799.87500	
	Data 50KHz	59	769.92500	799.92500	
	Data 50KHz	60	769.97500	799.97500	
Lafayette	Voice 25KHz	13-16	764.08750	794.08750	Campus
	Voice 25KHz	53-56	764.33750	794.33750	Campus
	Voice 25KHz	93-96	764.58750	794.58750	
	Voice 25KHz	121-124	764.76250	794.76250	Campus
	Voice 25KHz	201-204	765.26250	795.26250	
	Voice 25KHz	373-376	766.33750	796.33750	
	Voice 25KHz	421-424	766.63750	796.63750	
	Voice 25KHz	461-464	766.88750	796.88750	
	Voice 25KHz	537-540	773.36250	803.36250	
	Voice 25KHz	581-584	773.63750	803.63750	Campus
	Voice 25KHz	617-620	773.86250	803.86250	
	Voice 25KHz	913-916	775.71250	805.71250	
	Data 50KHz	49	769.42500	799.42500	
	Data 50KHz	50	769.47500	799.47500	
	Data 50KHz	51	769.52500	799.52500	
	Data 50KHz	85	771.22500	801.22500	
	Data 50KHz	86	771.27500	801.27500	
	Data 50KHz	87	771.32500	801.32500	
Lawrence	Voice 25KHz	97-100	764.61250	794.61250	
	Voice 25KHz	253-256	765.58750	795.58750	
	Voice 25KHz	393-396	766.46250	796.46250	
	Voice 25KHz	441-444	766.76250	796.76250	
	Voice 25KHz	529-532	773.31250	803.31250	
	Voice 25KHz	573-576	773.58750	803.58750	
	Voice 25KHz	613-616	773.83750	803.83750	
	Voice 25KHz	661-664	774.13750	804.13750	
	Voice 25KHz	717-720	774.48750	804.48750	
	Data 50KHz	43	769.12500	799.12500	
	Data 50KHz	44	769.17500	799.17500	
	Data 50KHz	45	769.22500	799.22500	
	Data 50KHz	88	771.37500	801.37500	
	Data 50KHz	89	771.42500	801.42500	
	Data 50KHz	90	771.47500	801.47500	
Lewis	Voice 25KHz	97-100	764.61250	794.61250	
	Voice 25KHz	381-384	766.38750	796.38750	
	Voice 25KHz	509-512	773.18750	803.18750	
	Voice 25KHz	565-568	773.53750	803.53750	
	Voice 25KHz	609-612	773.81250	803.81250	
	Voice 25KHz	821-824	775.13750	805.13750	

	Voice 25KHz	873-876	775.46250	805.46250
	Voice 25KHz	917-920	775.73750	805.73750
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Lincoln	Voice 25KHz	57-60	764.36250	794.36250
	Voice 25KHz	253-256	765.58750	795.58750
	Voice 25KHz	293-296	765.83750	795.83750
	Voice 25KHz	401-404	766.51250	796.51250
	Voice 25KHz	473-476	766.96250	796.96250
	Voice 25KHz	485-488	773.03750	803.03750
	Voice 25KHz	561-564	773.51250	803.51250
	Voice 25KHz	605-608	773.78750	803.78750
	Voice 25KHz	673-676	774.21250	804.21250
	Voice 25KHz	785-788	774.91250	804.91250
	Voice 25KHz	869-872	775.43750	805.43750
	Voice 25KHz	909-912	775.68750	805.68750
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Linn	Voice 25KHz	45-48	764.28750	794.28750
	Voice 25KHz	205-208	765.28750	795.28750
	Voice 25KHz	249-252	765.56250	795.56250
	Voice 25KHz	289-292	765.81250	795.81250
	Voice 25KHz	345-348	766.16250	796.16250
	Voice 25KHz	457-460	766.86250	796.86250
	Voice 25KHz	509-512	773.18750	803.18750
	Voice 25KHz	561-564	773.51250	803.51250
	Voice 25KHz	605-608	773.78750	803.78750
	Voice 25KHz	745-748	774.66250	804.66250
	Voice 25KHz	945-948	775.91250	805.91250
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
Livingston	Voice 25KHz	97-100	764.61250	794.61250
	Voice 25KHz	173-176	765.08750	795.08750
	Voice 25KHz	257-260	765.61250	795.61250
	Voice 25KHz	297-300	765.86250	795.86250
	Voice 25KHz	401-404	766.51250	796.51250
	Voice 25KHz	481-484	773.01250	803.01250
	Voice 25KHz	541-544	773.38750	803.38750
	Voice 25KHz	597-600	773.73750	803.73750
	Voice 25KHz	677-680	774.23750	804.23750
	Voice 25KHz	753-756	774.71250	804.71250

	Voice 25KHz	917-920	775.73750	805.73750	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
	Data 50KHz	72	770.57500	800.57500	
Macon	Voice 25KHz	93-96	764.58750	794.58750	
	Voice 25KHz	133-136	764.83750	794.83750	
	Voice 25KHz	241-244	765.51250	795.51250	
	Voice 25KHz	321-324	766.01250	796.01250	
	Voice 25KHz	369-372	766.31250	796.31250	
	Voice 25KHz	429-432	766.68750	796.68750	
	Voice 25KHz	529-532	773.31250	803.31250	
	Voice 25KHz	593-596	773.71250	803.71250	
	Voice 25KHz	637-640	773.98750	803.98750	
	Voice 25KHz	717-720	774.48750	804.48750	
	Voice 25KHz	825-828	775.16250	805.16250	
	Voice 25KHz	877-880	775.48750	805.48750	
	Data 50KHz	40	768.97500	798.97500	
	Data 50KHz	41	769.02500	799.02500	
	Data 50KHz	42	769.07500	799.07500	
Madison	Voice 25KHz	169-172	765.06250	795.06250	
	Voice 25KHz	281-284	765.76250	795.76250	
	Voice 25KHz	393-396	766.46250	796.46250	
	Voice 25KHz	505-508	773.16250	803.16250	
	Voice 25KHz	573-576	773.58750	803.58750	
	Voice 25KHz	617-620	773.86250	803.86250	
	Voice 25KHz	865-868	775.41250	805.41250	
	Data 50KHz	64	770.17500	800.17500	
	Data 50KHz	65	770.22500	800.22500	
	Data 50KHz	66	770.27500	800.27500	
	Data 50KHz	79	770.92500	800.92500	
	Data 50KHz	80	770.97500	800.97500	
	Data 50KHz	81	771.02500	801.02500	
Maries	Voice 25KHz	169-172	765.06250	795.06250	
	Voice 25KHz	241-244	765.51250	795.51250	
	Voice 25KHz	345-348	766.16250	796.16250	
	Voice 25KHz	473-476	766.96250	796.96250	Campus
	Voice 25KHz	485-488	773.03750	803.03750	
	Voice 25KHz	513-516	773.21250	803.21250	Campus
	Voice 25KHz	533-536	773.33750	803.33750	
	Voice 25KHz	617-620	773.86250	803.86250	Campus
	Voice 25KHz	829-832	775.18750	805.18750	Campus
	Data 50KHz	49	769.42500	799.42500	
	Data 50KHz	50	769.47500	799.47500	
	Data 50KHz	51	769.52500	799.52500	
	Data 50KHz	85	771.22500	801.22500	
	Data 50KHz	86	771.27500	801.27500	
	Data 50KHz	87	771.32500	801.32500	
Marion	Voice 25KHz	45-48	764.28750	794.28750	
	Voice 25KHz	201-204	765.26250	795.26250	
	Voice 25KHz	249-252	765.56250	795.56250	
	Voice 25KHz	289-292	765.81250	795.81250	
	Voice 25KHz	345-348	766.16250	796.16250	

	Voice 25KHz	393-396	766.46250	796.46250
	Voice 25KHz	445-448	766.78750	796.78750
	Voice 25KHz	517-520	773.23750	803.23750
	Voice 25KHz	581-584	773.63750	803.63750
	Voice 25KHz	629-632	773.93750	803.93750
	Voice 25KHz	701-704	774.38750	804.38750
	Voice 25KHz	749-752	774.68750	804.68750
	Voice 25KHz	789-792	774.93750	804.93750
	Voice 25KHz	905-908	775.66250	805.66250
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
McDonald	Voice 25KHz	249-252	765.56250	795.56250
	Voice 25KHz	397-400	766.48750	796.48750
	Voice 25KHz	465-468	766.91250	796.91250
	Voice 25KHz	517-520	773.23750	803.23750
	Voice 25KHz	565-568	773.53750	803.53750
	Voice 25KHz	829-832	775.18750	805.18750
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
	Data 50KHz	79	770.92500	800.92500
	Data 50KHz	80	770.97500	800.97500
	Data 50KHz	81	771.02500	801.02500
Mercer	Voice 25KHz	201-204	765.26250	795.26250
	Voice 25KHz	405-408	766.53750	796.53750
	Voice 25KHz	497-500	773.11250	803.11250
	Voice 25KHz	621-624	773.88750	803.88750
	Voice 25KHz	749-752	774.68750	804.68750
	Voice 25KHz	865-868	775.41250	805.41250
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
Miller	Voice 25KHz	97-100	764.61250	794.61250
	Voice 25KHz	325-328	766.03750	796.03750
	Voice 25KHz	373-376	766.33750	796.33750
	Voice 25KHz	421-424	766.63750	796.63750
	Voice 25KHz	461-464	766.88750	796.88750
	Voice 25KHz	525-528	773.28750	803.28750
	Voice 25KHz	573-576	773.58750	803.58750
	Voice 25KHz	621-624	773.88750	803.88750
	Voice 25KHz	797-800	774.98750	804.98750
	Data 50KHz	43	769.12500	799.12500
	Data 50KHz	44	769.17500	799.17500
	Data 50KHz	45	769.22500	799.22500
	Data 50KHz	88	771.37500	801.37500
	Data 50KHz	89	771.42500	801.42500
	Data 50KHz	90	771.47500	801.47500
Mississippi	Voice 25KHz	169-172	765.06250	795.06250
	Voice 25KHz	345-348	766.16250	796.16250
	Voice 25KHz	465-468	766.91250	796.91250
	Voice 25KHz	533-536	773.33750	803.33750

	Voice 25KHz	625-628	773.91250	803.91250
	Voice 25KHz	793-796	774.96250	804.96250
	Data 50KHz	43	769.12500	799.12500
	Data 50KHz	44	769.17500	799.17500
	Data 50KHz	45	769.22500	799.22500
Moniteau	Voice 25KHz	337-340	766.11250	796.11250
	Voice 25KHz	429-432	766.68750	796.68750
	Voice 25KHz	469-472	766.93750	796.93750
	Voice 25KHz	509-512	773.18750	803.18750
	Voice 25KHz	561-564	773.51250	803.51250
	Voice 25KHz	613-616	773.83750	803.83750
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
	Data 50KHz	79	770.92500	800.92500
	Data 50KHz	80	770.97500	800.97500
	Data 50KHz	81	771.02500	801.02500
Monroe	Voice 25KHz	85-88	764.53750	794.53750
	Voice 25KHz	213-216	765.33750	795.33750
	Voice 25KHz	409-412	766.56250	796.56250
	Voice 25KHz	505-508	773.16250	803.16250
	Voice 25KHz	569-572	773.56250	803.56250
	Voice 25KHz	669-672	774.18750	804.18750
	Voice 25KHz	781-784	774.88750	804.88750
	Voice 25KHz	865-868	775.41250	805.41250
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
Montgomery	Voice 25KHz	341-344	766.13750	796.13750
	Voice 25KHz	413-416	766.58750	796.58750
	Voice 25KHz	633-636	773.96250	803.96250
	Voice 25KHz	741-744	774.63750	804.63750
	Voice 25KHz	861-864	775.38750	805.38750
	Voice 25KHz	917-920	775.73750	805.73750
	Data 50KHz	43	769.12500	799.12500
	Data 50KHz	44	769.17500	799.17500
	Data 50KHz	45	769.22500	799.22500
	Data 50KHz	88	771.37500	801.37500
	Data 50KHz	89	771.42500	801.42500
	Data 50KHz	90	771.47500	801.47500
Morgan	Voice 25KHz	45-48	764.28750	794.28750
	Voice 25KHz	121-124	764.76250	794.76250
	Voice 25KHz	353-356	766.21250	796.21250
	Voice 25KHz	453-456	766.83750	796.83750
	Voice 25KHz	581-584	773.63750	803.63750
	Voice 25KHz	629-632	773.93750	803.93750
	Voice 25KHz	717-720	774.48750	804.48750
	Voice 25KHz	869-872	775.43750	805.43750
	Voice 25KHz	917-920	775.73750	805.73750
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500

	Data 50KHz	76	770.77500	800.77500
	Data 50KHz	77	770.82500	800.82500
	Data 50KHz	78	770.87500	800.87500
New Madrid	Voice 25KHz	209-212	765.31250	795.31250
	Voice 25KHz	325-328	766.03750	796.03750
	Voice 25KHz	377-380	766.36250	796.36250
	Voice 25KHz	441-444	766.76250	796.76250
	Voice 25KHz	541-544	773.38750	803.38750
	Voice 25KHz	581-584	773.63750	803.63750
	Voice 25KHz	633-636	773.96250	803.96250
	Voice 25KHz	701-704	774.38750	804.38750
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
Newton	Voice 25KHz	17-20	764.11250	794.11250
	Voice 25KHz	129-132	764.81250	794.81250
	Voice 25KHz	205-208	765.28750	795.28750
	Voice 25KHz	333-336	766.08750	796.08750
	Voice 25KHz	377-380	766.36250	796.36250
	Voice 25KHz	433-436	766.71250	796.71250
	Voice 25KHz	497-500	773.11250	803.11250
	Voice 25KHz	557-560	773.48750	803.48750
	Voice 25KHz	597-600	773.73750	803.73750
	Voice 25KHz	637-640	773.98750	803.98750
	Voice 25KHz	753-756	774.71250	804.71250
	Voice 25KHz	797-800	774.98750	804.98750
	Voice 25KHz	861-864	775.38750	805.38750
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Nodaway	Voice 25KHz	45-48	764.28750	794.28750
	Voice 25KHz	85-88	764.53750	794.53750
	Voice 25KHz	137-140	764.86250	794.86250
	Voice 25KHz	205-208	765.28750	795.28750
	Voice 25KHz	249-252	765.56250	795.56250
	Voice 25KHz	361-364	766.26250	796.26250
	Voice 25KHz	413-416	766.58750	796.58750
	Voice 25KHz	461-464	766.88750	796.88750
	Voice 25KHz	481-484	773.01250	803.01250
	Voice 25KHz	529-532	773.31250	803.31250
	Voice 25KHz	621-624	773.88750	803.88750
	Voice 25KHz	661-664	774.13750	804.13750
	Voice 25KHz	701-704	774.38750	804.38750
	Voice 25KHz	745-748	774.66250	804.66250
	Voice 25KHz	785-788	774.91250	804.91250
	Voice 25KHz	869-872	775.43750	805.43750
	Voice 25KHz	917-920	775.73750	805.73750
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500



Oregon	Voice 25KHz	41-44	764.26250	794.26250
	Voice 25KHz	161-164	765.01250	795.01250
	Voice 25KHz	325-328	766.03750	796.03750
	Voice 25KHz	401-404	766.51250	796.51250
	Voice 25KHz	441-444	766.76250	796.76250
	Voice 25KHz	557-560	773.48750	803.48750
	Voice 25KHz	741-744	774.63750	804.63750
	Voice 25KHz	861-864	775.38750	805.38750
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Osage	Voice 25KHz	133-136	764.83750	794.83750
	Voice 25KHz	381-384	766.38750	796.38750
	Voice 25KHz	553-556	773.46250	803.46250
	Voice 25KHz	597-600	773.73750	803.73750
	Voice 25KHz	709-712	774.43750	804.43750
	Voice 25KHz	781-784	774.88750	804.88750
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
Ozark	Data 50KHz	33	768.62500	798.62500
	Voice 25KHz	89-92	764.56250	794.56250
	Voice 25KHz	369-372	766.31250	796.31250
	Voice 25KHz	417-420	766.61250	796.61250
	Voice 25KHz	561-564	773.51250	803.51250
	Voice 25KHz	609-612	773.81250	803.81250
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
	Data 50KHz	70	770.47500	800.47500
Pemiscot	Data 50KHz	71	770.52500	800.52500
	Data 50KHz	72	770.57500	800.57500
	Voice 25KHz	57-60	764.36250	794.36250
	Voice 25KHz	217-220	765.36250	795.36250
	Voice 25KHz	393-396	766.46250	796.46250
	Voice 25KHz	433-436	766.71250	796.71250
	Voice 25KHz	529-532	773.31250	803.31250
	Voice 25KHz	573-576	773.58750	803.58750
	Voice 25KHz	757-760	774.73750	804.73750
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
	Data 50KHz	76	770.77500	800.77500
	Data 50KHz	77	770.82500	800.82500
	Data 50KHz	78	770.87500	800.87500
Perry	Voice 25KHz	345-348	766.16250	796.16250
	Voice 25KHz	441-444	766.76250	796.76250
	Voice 25KHz	597-600	773.73750	803.73750
	Voice 25KHz	705-708	774.41250	804.41250

	Voice 25KHz	793-796	774.96250	804.96250
	Voice 25KHz	945-948	775.91250	805.91250
	Data 50KHz	40	768.97500	798.97500
	Data 50KHz	41	769.02500	799.02500
	Data 50KHz	42	769.07500	799.07500
Pettis	Voice 25KHz	17-20	764.11250	794.11250
	Voice 25KHz	57-60	764.36250	794.36250
	Voice 25KHz	133-136	764.83750	794.83750
	Voice 25KHz	173-176	765.08750	795.08750
	Voice 25KHz	241-244	765.51250	795.51250
	Voice 25KHz	329-332	766.06250	796.06250
	Voice 25KHz	413-416	766.58750	796.58750
	Voice 25KHz	481-484	773.01250	803.01250
	Voice 25KHz	553-556	773.46250	803.46250
	Voice 25KHz	597-600	773.73750	803.73750
	Voice 25KHz	709-712	774.43750	804.43750
	Voice 25KHz	781-784	774.88750	804.88750
	Voice 25KHz	837-840	775.23750	805.23750
	Voice 25KHz	901-904	775.63750	805.63750
	Data 50KHz	40	768.97500	798.97500
	Data 50KHz	41	769.02500	799.02500
	Data 50KHz	42	769.07500	799.07500
	Data 50KHz	58	769.87500	799.87500
	Data 50KHz	59	769.92500	799.92500
	Data 50KHz	60	769.97500	799.97500
Phelps	Voice 25KHz	41-44	764.26250	794.26250
	Voice 25KHz	93-96	764.58750	794.58750
	Voice 25KHz	161-164	765.01250	795.01250
	Voice 25KHz	213-216	765.33750	795.33750
	Voice 25KHz	253-256	765.58750	795.58750
	Voice 25KHz	329-332	766.06250	796.06250
	Voice 25KHz	377-380	766.36250	796.36250
	Voice 25KHz	433-436	766.71250	796.71250
	Voice 25KHz	509-512	773.18750	803.18750
	Voice 25KHz	565-568	773.53750	803.53750
	Voice 25KHz	609-612	773.81250	803.81250
	Voice 25KHz	665-668	774.16250	804.16250
	Voice 25KHz	705-708	774.41250	804.41250
	Voice 25KHz	793-796	774.96250	804.96250
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
	Data 50KHz	79	770.92500	800.92500
	Data 50KHz	80	770.97500	800.97500
	Data 50KHz	81	771.02500	801.02500
Pike	Voice 25KHz	49-52	764.31250	794.31250
	Voice 25KHz	173-176	765.08750	795.08750
	Voice 25KHz	373-376	766.33750	796.33750
	Voice 25KHz	441-444	766.76250	796.76250
	Voice 25KHz	497-500	773.11250	803.11250
	Voice 25KHz	545-548	773.41250	803.41250
	Voice 25KHz	585-588	773.66250	803.66250
	Voice 25KHz	665-668	774.16250	804.16250

	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
Platte	Voice 25KHz	17-20	764.11250	794.11250
	Voice 25KHz	57-60	764.36250	794.36250
	Voice 25KHz	169-172	765.06250	795.06250
	Voice 25KHz	325-328	766.03750	796.03750
	Voice 25KHz	365-368	766.28750	796.28750
	Voice 25KHz	417-420	766.61250	796.61250
	Voice 25KHz	457-460	766.86250	796.86250
	Voice 25KHz	485-488	773.03750	803.03750
	Voice 25KHz	525-528	773.28750	803.28750
	Voice 25KHz	569-572	773.56250	803.56250
	Voice 25KHz	609-612	773.81250	803.81250
	Voice 25KHz	677-680	774.23750	804.23750
	Voice 25KHz	717-720	774.48750	804.48750
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
	Data 50KHz	76	770.77500	800.77500
	Data 50KHz	77	770.82500	800.82500
	Data 50KHz	78	770.87500	800.87500
Polk	Voice 25KHz	53-56	764.33750	794.33750
	Voice 25KHz	93-96	764.58750	794.58750
	Voice 25KHz	213-216	765.33750	795.33750
	Voice 25KHz	349-352	766.18750	796.18750
	Voice 25KHz	397-400	766.48750	796.48750
	Voice 25KHz	445-448	766.78750	796.78750
	Voice 25KHz	533-536	773.33750	803.33750
	Voice 25KHz	597-600	773.73750	803.73750
	Voice 25KHz	665-668	774.16250	804.16250
	Voice 25KHz	713-716	774.46250	804.46250
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
	Data 50KHz	70	770.47500	800.47500
	Data 50KHz	71	770.52500	800.52500
	Data 50KHz	72	770.57500	800.57500
Pulaski	Voice 25KHz	57-60	764.36250	794.36250
	Voice 25KHz	137-140	764.86250	794.86250
	Voice 25KHz	281-284	765.76250	795.76250
	Voice 25KHz	365-368	766.28750	796.28750
	Voice 25KHz	413-416	766.58750	796.58750
	Voice 25KHz	477-480	766.98750	796.98750
	Voice 25KHz	501-504	773.13750	803.13750
	Voice 25KHz	593-596	773.71250	803.71250
	Voice 25KHz	633-636	773.96250	803.96250
	Voice 25KHz	673-676	774.21250	804.21250
	Voice 25KHz	713-716	774.46250	804.46250
	Voice 25KHz	757-760	774.73750	804.73750

	Voice 25KHz	837-840	775.23750	805.23750	
	Voice 25KHz	877-880	775.48750	805.48750	
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
	Data 50KHz	72	770.57500	800.57500	
Putnam	Voice 25KHz	165-168	765.03750	795.03750	
	Voice 25KHz	353-356	766.21250	796.21250	
	Voice 25KHz	397-400	766.48750	796.48750	
	Voice 25KHz	461-464	766.88750	796.88750	
	Voice 25KHz	565-568	773.53750	803.53750	
	Voice 25KHz	609-612	773.81250	803.81250	
	Voice 25KHz	821-824	775.13750	805.13750	
	Data 50KHz	64	770.17500	800.17500	
	Data 50KHz	65	770.22500	800.22500	
	Data 50KHz	66	770.27500	800.27500	
Ralls	Voice 25KHz	281-284	765.76250	795.76250	
	Voice 25KHz	337-340	766.11250	796.11250	
	Voice 25KHz	385-388	766.41250	796.41250	
	Voice 25KHz	489-492	773.06250	803.06250	
	Voice 25KHz	553-556	773.46250	803.46250	
	Voice 25KHz	757-760	774.73750	804.73750	
	Data 50KHz	34	768.67500	798.67500	
	Data 50KHz	35	768.72500	798.72500	
	Data 50KHz	36	768.77500	798.77500	
Randolph	Voice 25KHz	13-16	764.08750	794.08750	
	Voice 25KHz	53-56	764.33750	794.33750	
	Voice 25KHz	121-124	764.76250	794.76250	
	Voice 25KHz	161-164	765.01250	795.01250	
	Voice 25KHz	285-288	765.78750	795.78750	
	Voice 25KHz	357-360	766.23750	796.23750	
	Voice 25KHz	397-400	766.48750	796.48750	
	Voice 25KHz	453-456	766.83750	796.83750	
	Voice 25KHz	557-560	773.48750	803.48750	
	Voice 25KHz	601-604	773.76250	803.76250	
	Voice 25KHz	797-800	774.98750	804.98750	
	Voice 25KHz	941-944	775.88750	805.88750	
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	
Ray	Voice 25KHz	321-324	766.01250	796.01250	
	Voice 25KHz	361-364	766.26250	796.26250	
	Voice 25KHz	453-456	766.83750	796.83750	
	Voice 25KHz	505-508	773.16250	803.16250	Campus
	Voice 25KHz	529-532	773.31250	803.31250	
	Voice 25KHz	637-640	773.98750	803.98750	
	Voice 25KHz	833-836	775.21250	805.21250	
	Data 50KHz	31	768.52500	798.52500	
	Data 50KHz	32	768.57500	798.57500	
	Data 50KHz	33	768.62500	798.62500	

	Data 50KHz	52	769.57500	799.57500
	Data 50KHz	53	769.62500	799.62500
	Data 50KHz	54	769.67500	799.67500
Reynolds	Voice 25KHz	13-16	764.08750	794.08750
	Voice 25KHz	57-60	764.36250	794.36250
	Voice 25KHz	165-168	765.03750	795.03750
	Voice 25KHz	449-452	766.81250	796.81250
	Voice 25KHz	521-524	773.26250	803.26250
	Voice 25KHz	569-572	773.56250	803.56250
	Voice 25KHz	613-616	773.83750	803.83750
	Voice 25KHz	781-784	774.88750	804.88750
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
Ripley	Voice 25KHz	293-296	765.83750	795.83750
	Voice 25KHz	361-364	766.26250	796.26250
	Voice 25KHz	433-436	766.71250	796.71250
	Voice 25KHz	473-476	766.96250	796.96250
	Voice 25KHz	509-512	773.18750	803.18750
	Voice 25KHz	573-576	773.58750	803.58750
	Voice 25KHz	621-624	773.88750	803.88750
	Voice 25KHz	757-760	774.73750	804.73750
	Voice 25KHz	825-828	775.16250	805.16250
	Data 50KHz	40	768.97500	798.97500
	Data 50KHz	41	769.02500	799.02500
	Data 50KHz	42	769.07500	799.07500
	Data 50KHz	58	769.87500	799.87500
	Data 50KHz	59	769.92500	799.92500
	Data 50KHz	60	769.97500	799.97500
Saline	Voice 25KHz	49-52	764.31250	794.31250
	Voice 25KHz	253-256	765.58750	795.58750
	Voice 25KHz	293-296	765.83750	795.83750
	Voice 25KHz	385-388	766.41250	796.41250
	Voice 25KHz	433-436	766.71250	796.71250
	Voice 25KHz	473-476	766.96250	796.96250
	Voice 25KHz	493-496	773.08750	803.08750
	Voice 25KHz	545-548	773.41250	803.41250
	Voice 25KHz	633-636	773.96250	803.96250
	Voice 25KHz	741-744	774.63750	804.63750
	Voice 25KHz	861-864	775.38750	805.38750
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
Schuyler	Voice 25KHz	293-296	765.83750	795.83750
	Voice 25KHz	377-380	766.36250	796.36250
	Voice 25KHz	445-448	766.78750	796.78750
	Voice 25KHz	541-544	773.38750	803.38750
	Voice 25KHz	781-784	774.88750	804.88750
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500

Scotland	Voice 25KHz	49-52	764.31250	794.31250	
	Voice 25KHz	453-456	766.83750	796.83750	
	Voice 25KHz	525-528	773.28750	803.28750	
	Voice 25KHz	601-604	773.76250	803.76250	
	Voice 25KHz	753-756	774.71250	804.71250	
	Voice 25KHz	829-832	775.18750	805.18750	
	Voice 25KHz	941-944	775.88750	805.88750	
	Data 50KHz	34	768.67500	798.67500	
	Data 50KHz	35	768.72500	798.72500	
	Data 50KHz	36	768.77500	798.77500	
Scott	Voice 25KHz	13-16	764.08750	794.08750	
	Voice 25KHz	53-56	764.33750	794.33750	
	Voice 25KHz	129-132	764.81250	794.81250	
	Voice 25KHz	245-248	765.53750	795.53750	
	Voice 25KHz	285-288	765.78750	795.78750	
	Voice 25KHz	333-336	766.08750	796.08750	
	Voice 25KHz	421-424	766.63750	796.63750	
	Voice 25KHz	509-512	773.18750	803.18750	
	Voice 25KHz	549-552	773.43750	803.43750	
	Voice 25KHz	665-668	774.16250	804.16250	
	Voice 25KHz	781-784	774.88750	804.88750	
	Voice 25KHz	861-864	775.38750	805.38750	
	Voice 25KHz	909-912	775.68750	805.68750	
	Data 50KHz	67	770.32500	800.32500	
	Data 50KHz	68	770.37500	800.37500	
	Data 50KHz	69	770.42500	800.42500	
Shannon	Voice 25KHz	209-212	765.31250	795.31250	
	Voice 25KHz	357-360	766.23750	796.23750	
	Voice 25KHz	421-424	766.63750	796.63750	
	Voice 25KHz	489-492	773.06250	803.06250	
	Voice 25KHz	537-540	773.36250	803.36250	
	Voice 25KHz	597-600	773.73750	803.73750	
	Voice 25KHz	637-640	773.98750	803.98750	
	Data 50KHz	61	770.02500	800.02500	
	Data 50KHz	62	770.07500	800.07500	
	Data 50KHz	63	770.12500	800.12500	
	Data 50KHz	76	770.77500	800.77500	
	Data 50KHz	77	770.82500	800.82500	
	Data 50KHz	78	770.87500	800.87500	
Shelby	Voice 25KHz	473-476	766.96250	796.96250	Campus
	Voice 25KHz	493-496	773.08750	803.08750	
	Voice 25KHz	537-540	773.36250	803.36250	
	Voice 25KHz	573-576	773.58750	803.58750	
	Voice 25KHz	621-624	773.88750	803.88750	
	Voice 25KHz	741-744	774.63750	804.63750	
	Voice 25KHz	837-840	775.23750	805.23750	Campus
	Voice 25KHz	869-872	775.43750	805.43750	
	Data 50KHz	70	770.47500	800.47500	
	Data 50KHz	71	770.52500	800.52500	
St. Charles	Data 50KHz	72	770.57500	800.57500	
	Voice 25KHz	45-48	764.28750	794.28750	
	Voice 25KHz	121-124	764.76250	794.76250	

	Voice 25KHz	161-164	765.01250	795.01250	
	Voice 25KHz	165-168	765.03750	795.03750	Campus
	Voice 25KHz	241-244	765.51250	795.51250	
	Voice 25KHz	281-284	765.76250	795.76250	
	Voice 25KHz	337-340	766.11250	796.11250	
	Voice 25KHz	377-380	766.36250	796.36250	
	Voice 25KHz	381-384	766.38750	796.38750	Campus
	Voice 25KHz	417-420	766.61250	796.61250	
	Voice 25KHz	505-508	773.16250	803.16250	
	Voice 25KHz	521-524	773.26250	803.26250	Campus
	Voice 25KHz	557-560	773.48750	803.48750	Campus
	Voice 25KHz	569-572	773.56250	803.56250	
	Voice 25KHz	573-576	773.58750	803.58750	Campus
	Voice 25KHz	629-632	773.93750	803.93750	
	Voice 25KHz	713-716	774.46250	804.46250	
	Voice 25KHz	753-756	774.71250	804.71250	Campus
	Voice 25KHz	757-760	774.73750	804.73750	
	Voice 25KHz	829-832	775.18750	805.18750	
	Data 50KHz	61	770.02500	800.02500	
	Data 50KHz	62	770.07500	800.07500	
	Data 50KHz	63	770.12500	800.12500	
	Data 50KHz	64	770.17500	800.17500	
	Data 50KHz	65	770.22500	800.22500	
	Data 50KHz	66	770.27500	800.27500	
	Data 50KHz	79	770.92500	800.92500	
	Data 50KHz	80	770.97500	800.97500	
	Data 50KHz	81	771.02500	801.02500	
St. Clair	Voice 25KHz	97-100	764.61250	794.61250	Campus
	Voice 25KHz	129-132	764.81250	794.81250	
	Voice 25KHz	289-292	765.81250	795.81250	Campus
	Voice 25KHz	373-376	766.33750	796.33750	
	Voice 25KHz	433-436	766.71250	796.71250	
	Voice 25KHz	437-440	766.73750	796.73750	Campus
	Voice 25KHz	485-488	773.03750	803.03750	Campus
	Voice 25KHz	493-496	773.08750	803.08750	Campus
	Voice 25KHz	517-520	773.23750	803.23750	Campus
	Voice 25KHz	537-540	773.36250	803.36250	Campus
	Voice 25KHz	545-548	773.41250	803.41250	
	Voice 25KHz	573-576	773.58750	803.58750	Campus
	Voice 25KHz	609-612	773.81250	803.81250	
	Voice 25KHz	673-676	774.21250	804.21250	Campus
	Voice 25KHz	757-760	774.73750	804.73750	Campus
	Voice 25KHz	877-880	775.48750	805.48750	
	Data 50KHz	43	769.12500	799.12500	
	Data 50KHz	44	769.17500	799.17500	
	Data 50KHz	45	769.22500	799.22500	
	Data 50KHz	88	771.37500	801.37500	
	Data 50KHz	89	771.42500	801.42500	
	Data 50KHz	90	771.47500	801.47500	
St. Francois	Voice 25KHz	49-52	764.31250	794.31250	
	Voice 25KHz	97-100	764.61250	794.61250	
	Voice 25KHz	201-204	765.26250	795.26250	
	Voice 25KHz	245-248	765.53750	795.53750	
	Voice 25KHz	293-296	765.83750	795.83750	

	Voice 25KHz	333-336	766.08750	796.08750	
	Voice 25KHz	405-408	766.53750	796.53750	
	Voice 25KHz	453-456	766.83750	796.83750	
	Voice 25KHz	485-488	773.03750	803.03750	
	Voice 25KHz	533-536	773.33750	803.33750	
	Voice 25KHz	585-588	773.66250	803.66250	
	Voice 25KHz	673-676	774.21250	804.21250	
	Voice 25KHz	753-756	774.71250	804.71250	
	Voice 25KHz	901-904	775.63750	805.63750	
	Data 50KHz	49	769.42500	799.42500	
	Data 50KHz	50	769.47500	799.47500	
	Data 50KHz	51	769.52500	799.52500	
	Data 50KHz	85	771.22500	801.22500	
	Data 50KHz	86	771.27500	801.27500	
	Data 50KHz	87	771.32500	801.32500	
St. Louis City	Voice 25KHz	17-20	764.11250	794.11250	Campus
	Voice 25KHz	89-92	764.56250	794.56250	Campus
	Voice 25KHz	205-208	765.28750	795.28750	Campus
	Voice 25KHz	353-356	766.21250	796.21250	
	Voice 25KHz	393-396	766.46250	796.46250	
	Voice 25KHz	457-460	766.86250	796.86250	
	Voice 25KHz	497-500	773.11250	803.11250	
	Voice 25KHz	553-556	773.46250	803.46250	
	Voice 25KHz	617-620	773.86250	803.86250	
	Voice 25KHz	665-668	774.16250	804.16250	
	Voice 25KHz	705-708	774.41250	804.41250	
	Voice 25KHz	797-800	774.98750	804.98750	
	Voice 25KHz	877-880	775.48750	805.48750	
	Data 50KHz	49	769.42500	799.42500	
	Data 50KHz	50	769.47500	799.47500	
	Data 50KHz	51	769.52500	799.52500	
	Data 50KHz	61	770.02500	800.02500	
	Data 50KHz	62	770.07500	800.07500	
	Data 50KHz	63	770.12500	800.12500	
	Data 50KHz	76	770.77500	800.77500	
	Data 50KHz	77	770.82500	800.82500	
	Data 50KHz	78	770.87500	800.87500	
St. Louis County	Voice 25KHz	13-16	764.08750	794.08750	
	Voice 25KHz	53-56	764.33750	794.33750	
	Voice 25KHz	93-96	764.58750	794.58750	
	Voice 25KHz	169-172	765.06250	795.06250	
	Voice 25KHz	209-212	765.31250	795.31250	
	Voice 25KHz	249-252	765.56250	795.56250	
	Voice 25KHz	289-292	765.81250	795.81250	
	Voice 25KHz	329-332	766.06250	796.06250	
	Voice 25KHz	369-372	766.31250	796.31250	
	Voice 25KHz	409-412	766.56250	796.56250	
	Voice 25KHz	477-480	766.98750	796.98750	
	Voice 25KHz	481-484	773.01250	803.01250	
	Voice 25KHz	541-544	773.38750	803.38750	
	Voice 25KHz	545-548	773.41250	803.41250	Campus
	Voice 25KHz	609-612	773.81250	803.81250	
	Voice 25KHz	677-680	774.23750	804.23750	
	Voice 25KHz	749-752	774.68750	804.68750	



	Voice 25KHz	789-792	774.93750	804.93750
	Voice 25KHz	865-868	775.41250	805.41250
	Voice 25KHz	905-908	775.66250	805.66250
	Voice 25KHz	945-948	775.91250	805.91250
	Data 50KHz	40	768.97500	798.97500
	Data 50KHz	41	769.02500	799.02500
	Data 50KHz	42	769.07500	799.07500
	Data 50KHz	58	769.87500	799.87500
	Data 50KHz	59	769.92500	799.92500
	Data 50KHz	60	769.97500	799.97500
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
Ste. Genevieve	Voice 25KHz	325-328	766.03750	796.03750
	Voice 25KHz	365-368	766.28750	796.28750
	Voice 25KHz	413-416	766.58750	796.58750
	Voice 25KHz	465-468	766.91250	796.91250
	Voice 25KHz	525-528	773.28750	803.28750
	Voice 25KHz	605-608	773.78750	803.78750
	Voice 25KHz	741-744	774.63750	804.63750
	Voice 25KHz	785-788	774.91250	804.91250
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Stoddard	Voice 25KHz	89-92	764.56250	794.56250
	Voice 25KHz	297-300	765.86250	795.86250
	Voice 25KHz	389-392	766.43750	796.43750
	Voice 25KHz	429-432	766.68750	796.68750
	Voice 25KHz	469-472	766.93750	796.93750
	Voice 25KHz	481-484	773.01250	803.01250
	Voice 25KHz	561-564	773.51250	803.51250
	Voice 25KHz	601-604	773.76250	803.76250
	Voice 25KHz	673-676	774.21250	804.21250
	Voice 25KHz	749-752	774.68750	804.68750
	Voice 25KHz	877-880	775.48750	805.48750
	Voice 25KHz	941-944	775.88750	805.88750
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Stone	Voice 25KHz	85-88	764.53750	794.53750
	Voice 25KHz	329-332	766.06250	796.06250
	Voice 25KHz	401-404	766.51250	796.51250
	Voice 25KHz	457-460	766.86250	796.86250
	Voice 25KHz	521-524	773.26250	803.26250

	Voice 25KHz	601-604	773.76250	803.76250
	Voice 25KHz	793-796	774.96250	804.96250
	Voice 25KHz	869-872	775.43750	805.43750
	Voice 25KHz	909-912	775.68750	805.68750
	Data 50KHz	40	768.97500	798.97500
	Data 50KHz	41	769.02500	799.02500
	Data 50KHz	42	769.07500	799.07500
	Data 50KHz	58	769.87500	799.87500
	Data 50KHz	59	769.92500	799.92500
	Data 50KHz	60	769.97500	799.97500
Sullivan	Voice 25KHz	337-340	766.11250	796.11250
	Voice 25KHz	421-424	766.63750	796.63750
	Voice 25KHz	469-472	766.93750	796.93750
	Voice 25KHz	549-552	773.43750	803.43750
	Voice 25KHz	785-788	774.91250	804.91250
	Voice 25KHz	833-836	775.21250	805.21250
	Voice 25KHz	901-904	775.63750	805.63750
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
Taney	Voice 25KHz	125-128	764.78750	794.78750
	Voice 25KHz	165-168	765.03750	795.03750
	Voice 25KHz	249-252	765.56250	795.56250
	Voice 25KHz	361-364	766.26250	796.26250
	Voice 25KHz	433-436	766.71250	796.71250
	Voice 25KHz	485-488	773.03750	803.03750
	Voice 25KHz	637-640	773.98750	803.98750
	Voice 25KHz	701-704	774.38750	804.38750
	Voice 25KHz	741-744	774.63750	804.63750
	Voice 25KHz	781-784	774.88750	804.88750
	Voice 25KHz	821-824	775.13750	805.13750
	Voice 25KHz	861-864	775.38750	805.38750
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
	Data 50KHz	79	770.92500	800.92500
	Data 50KHz	80	770.97500	800.97500
	Data 50KHz	81	771.02500	801.02500
Texas	Voice 25KHz	17-20	764.11250	794.11250
	Voice 25KHz	81-84	764.51250	794.51250
	Voice 25KHz	129-132	764.81250	794.81250
	Voice 25KHz	201-204	765.26250	795.26250
	Voice 25KHz	245-248	765.53750	795.53750
	Voice 25KHz	321-324	766.01250	796.01250
	Voice 25KHz	393-396	766.46250	796.46250
	Voice 25KHz	445-448	766.78750	796.78750
	Voice 25KHz	517-520	773.23750	803.23750
	Voice 25KHz	865-868	775.41250	805.41250
	Voice 25KHz	917-920	775.73750	805.73750
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500

Vernon	Voice 25KHz	169-172	765.06250	795.06250
	Voice 25KHz	209-212	765.31250	795.31250
	Voice 25KHz	361-364	766.26250	796.26250
	Voice 25KHz	409-412	766.56250	796.56250
	Voice 25KHz	449-452	766.81250	796.81250
	Voice 25KHz	481-484	773.01250	803.01250
	Voice 25KHz	521-524	773.26250	803.26250
	Voice 25KHz	589-592	773.68750	803.68750
	Voice 25KHz	837-840	775.23750	805.23750
	Voice 25KHz	901-904	775.63750	805.63750
	Data 50KHz	67	770.32500	800.32500
	Data 50KHz	68	770.37500	800.37500
	Data 50KHz	69	770.42500	800.42500
	Data 50KHz	85	771.22500	801.22500
	Data 50KHz	86	771.27500	801.27500
	Data 50KHz	87	771.32500	801.32500
Warren	Voice 25KHz	81-84	764.51250	794.51250
	Voice 25KHz	177-180	765.11250	795.11250
	Voice 25KHz	217-220	765.36250	795.36250
	Voice 25KHz	325-328	766.03750	796.03750
	Voice 25KHz	365-368	766.28750	796.28750
	Voice 25KHz	429-432	766.68750	796.68750
	Voice 25KHz	517-520	773.23750	803.23750
	Voice 25KHz	613-616	773.83750	803.83750
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
	Data 50KHz	70	770.47500	800.47500
	Data 50KHz	71	770.52500	800.52500
	Data 50KHz	72	770.57500	800.57500
Washington	Voice 25KHz	17-20	764.11250	794.11250
	Voice 25KHz	173-176	765.08750	795.08750
	Voice 25KHz	257-260	765.61250	795.61250
	Voice 25KHz	373-376	766.33750	796.33750
	Voice 25KHz	425-428	766.66250	796.66250
	Voice 25KHz	473-476	766.96250	796.96250
	Voice 25KHz	513-516	773.21250	803.21250
	Voice 25KHz	561-564	773.51250	803.51250
	Voice 25KHz	701-704	774.38750	804.38750
	Voice 25KHz	745-748	774.66250	804.66250
	Voice 25KHz	797-800	774.98750	804.98750
	Data 50KHz	43	769.12500	799.12500
	Data 50KHz	44	769.17500	799.17500
	Data 50KHz	45	769.22500	799.22500
	Data 50KHz	88	771.37500	801.37500
	Data 50KHz	89	771.42500	801.42500
	Data 50KHz	90	771.47500	801.47500
Wayne	Voice 25KHz	125-128	764.78750	794.78750
	Voice 25KHz	241-244	765.51250	795.51250
	Voice 25KHz	329-332	766.06250	796.06250
	Voice 25KHz	381-384	766.38750	796.38750
	Voice 25KHz	457-460	766.86250	796.86250
	Voice 25KHz	493-496	773.08750	803.08750

	Voice 25KHz	589-592	773.68750	803.68750
	Voice 25KHz	661-664	774.13750	804.13750
	Data 50KHz	31	768.52500	798.52500
	Data 50KHz	32	768.57500	798.57500
	Data 50KHz	33	768.62500	798.62500
Webster	Voice 25KHz	133-136	764.83750	794.83750
	Voice 25KHz	173-176	765.08750	795.08750
	Voice 25KHz	257-260	765.61250	795.61250
	Voice 25KHz	337-340	766.11250	796.11250
	Voice 25KHz	377-380	766.36250	796.36250
	Voice 25KHz	437-440	766.73750	796.73750
	Voice 25KHz	513-516	773.21250	803.21250
	Voice 25KHz	565-568	773.53750	803.53750
	Voice 25KHz	605-608	773.78750	803.78750
	Voice 25KHz	797-800	774.98750	804.98750
	Voice 25KHz	913-916	775.71250	805.71250
	Data 50KHz	49	769.42500	799.42500
	Data 50KHz	50	769.47500	799.47500
	Data 50KHz	51	769.52500	799.52500
	Data 50KHz	61	770.02500	800.02500
	Data 50KHz	62	770.07500	800.07500
	Data 50KHz	63	770.12500	800.12500
	Data 50KHz	76	770.77500	800.77500
	Data 50KHz	77	770.82500	800.82500
	Data 50KHz	78	770.87500	800.87500
Worth	Voice 25KHz	213-216	765.33750	795.33750
	Voice 25KHz	289-292	765.81250	795.81250
	Voice 25KHz	337-340	766.11250	796.11250
	Voice 25KHz	389-392	766.43750	796.43750
	Voice 25KHz	549-552	773.43750	803.43750
	Voice 25KHz	677-680	774.23750	804.23750
	Data 50KHz	64	770.17500	800.17500
	Data 50KHz	65	770.22500	800.22500
	Data 50KHz	66	770.27500	800.27500
Wright	Voice 25KHz	453-456	766.83750	796.83750
	Voice 25KHz	497-500	773.11250	803.11250
	Voice 25KHz	557-560	773.48750	803.48750
	Voice 25KHz	613-616	773.83750	803.83750
	Voice 25KHz	669-672	774.18750	804.18750
	Voice 25KHz	709-712	774.43750	804.43750
	Voice 25KHz	749-752	774.68750	804.68750
	Voice 25KHz	873-876	775.46250	805.46250
	Data 50KHz	34	768.67500	798.67500
	Data 50KHz	35	768.72500	798.72500
	Data 50KHz	36	768.77500	798.77500
	Data 50KHz	55	769.72500	799.72500
	Data 50KHz	56	769.77500	799.77500
	Data 50KHz	57	769.82500	799.82500

Channels labeled "Campus" are subject to ERP and Service Area limitations. See section 3.12, Paragraph "F" for additional information.

## PROCESS FOR HANDLING UNFORMED REGIONS

The Implementation Subcommittee recommends that all Regions use the following pre-planning methodology to facilitate coordination with adjacent Regions. This procedure will provide a spectrum allotment for adjacent Regions that do not immediately form a Committee.

Counties or other geographic subdivisions within 70 miles of the Regional border need to share spectrum with the adjacent Region(s). The appropriate ratio of channels shall be allotted to counties in adjacent Regions based upon each county's population. A 25 kHz building block will be used to distribute spectrum between the Regions. A description of the demographics of the affected border areas shall be included.

*The requirements for adjacent Region concurrence will require a waiver if the adjacent Region has not yet formed. The Region filing the Plan must use the pre-planning procedure outlined above. The waiver request must be filed concurrently with the Plan and contained in the cover letter.*

**The following form is an electronic copy of the signed PDF versions from Region 24's adjacent regions accompanying this document.**

**Appendix H  
Sample Form  
Inter-Regional Coordination Procedures  
And  
Procedures for Resolution of Disputes  
That May Arise Under FCC Approved Plans**

**I.**

**II. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees,

**Region XX**

**Region XX**

**II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination which has been agreed upon by Regions 24, X, XX, XX, XX, XX, XX, XX and XX and which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

- a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
- b. Applications by eligible entities are accepted.
- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.

d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.

e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>2</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.

f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

(1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

- (i) Unconditional concurrence;
- (ii) Conditional concurrence contingent upon modification of Applicant's technical parameters; or

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<sup>2</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

- (iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

h. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### **III. CONCLUSION**

3. IN AGREEMENT HERETO, Regions 4,13,15,16,17,24,26,34 and 39 do hereunto set their signatures the day and year first above written.

Respectfully,



[all signatories to agreement]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date: \_\_\_\_\_

# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

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## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees,

**Region 4- Arkansas**

**Region 24- Missouri**

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination, which has been agreed upon by Region 24 and Region 4 which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.

- b. Applications by eligible entities are accepted.
- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

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<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

- (i) Unconditional concurrence;
- (ii) Conditional concurrence contingent upon modification of Applicant's technical parameters; or
- (iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Planning Oversight Committee of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

h. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### III. CONCLUSION

3. IN AGREEMENT HERETO, Region 24 and Region 4 do hereunto set their signatures the day and year first above written.

Respectfully,

[all signatories to agreement]

Carl W. Jacobs  
Chair of Region 4 700 MHz Planning Committee

Reg. 24 Region 24

Date: 01/20/05

Stephen T. Devine, Region 24 Chairperson  
Communications Division  
Missouri State Highway Patrol General Headquarters  
1510 East Elm Street

Dear Sir:

After complete and careful review of Missouri Region 24 700 MHZ Plan, Arkansas  
Region 4 Planning Committee concurs. Study was made of Region 24's  
revised plan and channel allotments and no conflicts were indenified. Arkansas looks  
forward to working with Missouri in a mutual effort in the future.

Sincerely,



Chairperson, Region 4 700 MHZ Regional Planning Committee  
Carl W. Jacobs  
3200 Brown  
Little Rock, Arkansas 72204



January 26, 2005

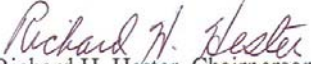
Stephen T. Devine  
Regional Chairperson Region 24 (Missouri)  
Missouri State Highway Patrol  
Communications Division  
P.O. Box 568  
Jefferson City, Missouri 65102

Dear Mr. Devine,

Region 15 (Iowa) is in receipt of your proposed 700 MHz Regional Plan, dated December 14, 2004. Region 15 met on January 26, 2005, reviewed and formally approved Region 24's Plan.

This letter serves as the official, written concurrence of Region 15 to your proposed 700 MHz Regional Plan.

Sincerely,

  
Richard H. Hester, Chairperson  
Region 15 700 MHz RPC  
Iowa State Patrol Communications  
56911 Whitepole Road  
Lewis, Iowa 51544

# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

---

## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees:

**Region 15**

**Region 24**

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination, which has been agreed upon by Region 24 and Region 15, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.



- b. Applications by eligible entities are accepted.
- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

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<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

- (i) Unconditional concurrence;
- (ii) Conditional concurrence contingent upon modification of  
Applicant's technical parameters; or
- (iii) Partial or total denial of proposed frequencies due to inability to  
meet co-channel/adjacent channel interference free protection to  
existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

h. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

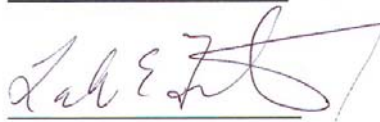
i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### III. CONCLUSION

3. IN AGREEMENT HERETO, Region 24 and Region 15 do hereunto set their signatures the day and year first above written.

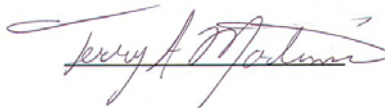
Respectfully,

[all signatories to agreement]



Eric News





Richard A. Heskett

Date: 1-26-05





**700 MHz Region 13  
Regional Planning Committee**

Thomas J. Ward, Jr., Chairman  
531 Sangamon Avenue, Springfield, Illinois 62702  
Phone (217) 782-5742  
[wardtho@isp.state.il.us](mailto:wardtho@isp.state.il.us)

February 06, 2005

Mr. Steve T. Devine, Chairperson  
Region 24 700 MHz Planning Committee  
Missouri State Highway Patrol  
P.O. Box 568  
Jefferson City, MO 65102

Dear Mr. Devine,

Region 13 is in receipt of your proposed 700 MHz Regional Plan, submitted to this Committee on 12/14/2004. Region 13 reviewed and formally approved Region 24's Plan.

This letter serves as the official, written concurrence of Region 13 to your proposed 700 MHz Regional Plan.

Sincerely,

Mr. Thomas J. Ward, Jr.  
Chairperson Region 13  
Illinois State Police  
531 Sangamon Avenue  
Springfield, IL 62702

# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

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## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees:

**Region 13**

**Region 24**

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination which has been agreed upon by Region 24 and Region 13 which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.



- b. Applications by eligible entities are accepted.
- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

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<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application: Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying Memorandum of Understanding (MOU) or other application documentation between agencies, i.e. mutual aid agreements.

- (i) Unconditional concurrence;
- (ii) Conditional concurrence contingent upon modification of Applicant's technical parameters; or
- (iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

h. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### III. CONCLUSION

3. IN AGREEMENT HERETO, Region 24 and Region 13 do hereunto set their signatures the day and year first above written.

Respectfully,

[all signatories to agreement]


Date: 02/14/05





DEPARTMENT OF TRANSPORTATION  
DEB MILLER, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

DEAN M. TESTA, P.E., CHIEF

December 21, 2004

Mr. Steve Devine, Chairperson  
Region 24 (Missouri)  
Missouri State Highway Patrol  
Communications Division  
P.O. Box 568  
Jefferson City, Missouri 65102

Dear Mr. Devine,

Region 16 (Kansas) is in receipt of your proposed 700 MHz Regional Plan, submitted to this committee on December 16th, 2004. Region 16 (Kansas) agrees with the Inter-Regional Coordination and Dispute Procedures submitted by Region 24 and is returning the signed procedure as an attachment with this letter. Region 16 (Kansas) looks forward to working closely with Region 24 in the future as the public safety 700 MHz regional plans are implemented.

This letter serves as the official, written concurrence of Region 16 (Kansas) to your proposed 700 MHz Regional Plan.

Sincerely,

Mr. Edwin D. Geer  
Chairperson, Region 16 (Kansas)

Attach:

BUREAU OF CONSTRUCTION AND MAINTENANCE  
700 S.W. HARRISON STREET, TOPEKA, KS 66603-3754  
PUBLIC ACCESS AT NORTH ENTRANCE OF BUILDING  
VOICE 785-296-3576 TTY 785-296-3585 FAX 785-296-6944 <http://www.ksdot.org>

# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

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## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees,  
Region 16  
Region 24

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination, which has been agreed upon by Region 24 and Region 16, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.
  - a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
  - b. Applications by eligible entities are accepted.

- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

- (i) Unconditional concurrence;

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<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

(ii) Conditional concurrence contingent upon modification of

Applicant's technical parameters; or

(iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

h. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.



### III. CONCLUSION

3. IN AGREEMENT HERETO, Region 24 and Region 16 do hereunto set their signatures the day and year first above written.

Respectfully,

[all signatories to agreement]

Edwin D. Heen

Steve Deen - Region 24

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date: 12/17/04

\_\_\_\_\_



DEPARTMENT OF MILITARY AFFAIRS  
COMMONWEALTH OF KENTUCKY  
DIVISION OF EMERGENCY MANAGEMENT  
FRANKFORT  
40601-6168



FEB 9, 2005

Stephen T. Devine Regional Chairperson Region 24  
Patrol Frequency Coordinator  
Communications Division  
Missouri State Highway Patrol  
1510 East Elm  
Jefferson City, Missouri 65101  
Phone: 573-526-6105  
FAX: 573-526-1112  
Email: [steve.devine@mshp.dps.mo.gov](mailto:steve.devine@mshp.dps.mo.gov)

Dear Mr. Devine:

Region 17 is in receipt of your proposed 700 MHz Regional Plan. The plan has been reviewed and was approved on FEB 9, 2005. Region 17 looks forward to working closely with Region 24 in the process of public safety 700 MHz implementation in the future.

This letter serves as the official, written concurrence of Region 17 to your proposed 700 MHz Regional Plan.

Sincerely,

Mr. Bob Stephens  
Chairperson Region 17  
Communications Supervisor  
Kentucky Division of Emergency Management  
EOC Building Boone National Guard Center  
100 Minuteman Parkway  
Frankfort, KY 40601  
Phone: 502-607-1617  
FAX: 502-607-1620  
Email: [bob.stephens@ky.ngb.army.mil](mailto:bob.stephens@ky.ngb.army.mil)  
Email: [bob@fewpb.net](mailto:bob@fewpb.net)

# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

---

## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees,

**Region 17**

**Region 24**

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination, which has been agreed upon by Region 24 and Region 17, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

- a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
- b. Applications by eligible entities are accepted.

- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

- (i) Unconditional concurrence;

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<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.



(ii) Conditional concurrence contingent upon modification of

Applicant's technical parameters; or

(iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

h. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### III. CONCLUSION

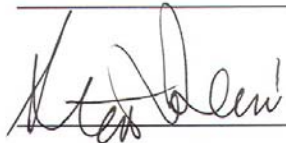
3. IN AGREEMENT HERETO, Region 24 and Region 17 do hereunto set their signatures the day and year first above written.

Respectfully,

[all signatories to agreement]



Region 17 Chair

 Region 24

Date: Feb 9, 2005

# STATE OF NEBRASKA



Mike Johanns  
Governor

DEPARTMENT OF ADMINISTRATIVE SERVICES  
Lori McClurg  
Director

January 18, 2005

Stephen T. Devine, Region 24 Chairperson  
Communications Division  
Missouri State Highway Patrol General Headquarters  
1510 East Elm Street  
Jefferson City, Missouri 65101

Dear Mr. Devine,

The Nebraska Region 26 concurs with the Missouri Region 24 700 MHz Plan. Nebraska Region 26 has reviewed the 700 MHz Plan submitted by Region 24 and is satisfied that the plan takes into account the necessary considerations to coordinate with adjacent regions.

Considering the rural populations near our mutual borders, and Cooper Nuclear Station, I believe the Region 24 700 MHz Plan has adequately addressed our mutual concerns. Nebraska Region 26 looks forward to working with Missouri Region 24 in coordination of 700 MHz and other spectrum issues in the future. Nebraska Region 26 is actively developing its plan and looks forward to presenting its plan for concurrence to Missouri Region 24 in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Jeffres".

Mike Jeffres  
Nebraska Region 26 Chair  
Division of Communications  
521 S. 14<sup>th</sup> Street, Suite 300  
Lincoln, NE 68508-2707

Division of Communications • Brenda L. Decker, Director  
Executive Building • 521 South 14th Street • Suite 300 • Lincoln, Nebraska 68508-2707 • Phone (402) 471-2761  
Home Page: <http://www.doc.state.ne.us/>

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# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

---

## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees,  
Region 26  
Region 24

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination, which has been agreed upon by Region 24 and Region 26, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

- a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
- b. Applications by eligible entities are accepted.
- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

### *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy

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<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.



the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

- (i) Unconditional concurrence;
- (ii) Conditional concurrence contingent upon modification of Applicant's technical parameters; or
- (iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

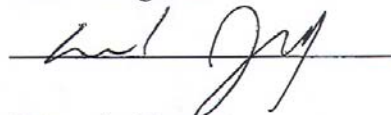
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i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### III. CONCLUSION

3. IN AGREEMENT HERETO, Region 24 and Region 26 do hereunto set their signatures the day and year first above written.

Respectfully,  
Mike Jeffres, Chair  
Nebraska Region 26



Date: 1-13-05

Stephen Devine 2-15-05  
Region 24



STATE OF OKLAHOMA  
DEPARTMENT OF PUBLIC SAFETY

February 23, 2005

Missouri State Highway Patrol  
Communications Division  
ATTN: Stephen T. Devine  
P. O. Box 568  
Jefferson City, Missouri 65102

SUBJECT: Region 24 700 MHz

Dear Mr. Devine:

Per your letter of February 23, 2005, Oklahoma concurs with and approves of Region 24 700 MHz Plan.

Respectfully,

A handwritten signature in black ink, appearing to read "Gene Thaxton", is positioned above the typed name.

Gene Thaxton  
for Stephen Williamson,  
Chairman Region 34

# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

---

## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees,  
Region 34  
Region 24

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination, which has been agreed upon by Region 24 and Region 34, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.
  - a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
  - b. Applications by eligible entities are accepted.

- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

- (i) Unconditional concurrence;

<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.



(ii) Conditional concurrence contingent upon modification of

Applicant's technical parameters; or

(iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

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i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### III. CONCLUSION

3. IN AGREEMENT HERETO, Region 24 and Region 34 do hereunto set their signatures the day and year first above written.

Respectfully,

[all signatories to agreement]

Brian Skipton

Stephen Region 24

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\_\_\_\_\_

\_\_\_\_\_

Date: 2-17-2005

TOTAL P.05

**700 MHz**  
**Planning Committee**

**Region 39, Tennessee**

**Region 39, 700 MHz Regional Planning Committee**  
**John Johnson, Chairman**  
**3041 Sidco Drive**  
**Nashville, TN 37204**

January 31, 2005

Mr. Steve T. Devine  
Region 24 Chairperson  
Communications Division  
Missouri State Highway Patrol General Headquarters  
1510 East Elm Street  
Jefferson City, Missouri 65101

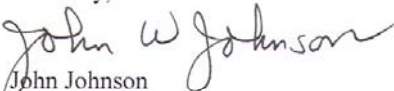
Dear Steve:

Region 39 is in receipt of your proposed 700 MHz Regional Plan, submitted to this Committee on December 2004. On behalf of Region 39, I have reviewed and formally approved Region 24's Plan. Region 39, Tennessee, looks forward to working closely with Missouri, Region 24, in the process of public safety 700 MHz implementation in the near future.

If any such disputes should arise, Region 39 will abide by the Dispute Resolution as outlined in the Region 24 Plan.

This letter serves as the official, written concurrence of Region 39 to your proposed 700 MHz Regional Plan.

Sincerely,

  
John Johnson  
Chairman  
Region 39 700 MHz RPC

# **Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise under FCC Approved Plans**

---

## **I. INTRODUCTION**

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees,  
Region 39  
Region 24

## **II. INTER-REGIONAL COORDINATION AGREEMENT**

2. The following is the specific procedure for inter-Regional coordination, which has been agreed upon by Region 24 and Region 39, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.
  - a. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
  - b. Applications by eligible entities are accepted.

- c. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
- d. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
- e. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.<sup>1</sup> This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.
- f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

## *II. Dispute Resolution*

- (1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons email (CAPRAD database). Findings may include, but not be limited to:

- (i) Unconditional concurrence;

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<sup>1</sup> If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.



(ii) Conditional concurrence contingent upon modification of

Applicant's technical parameters; or

(iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

(2) If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council. Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

g. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

h. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

i. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

### III. CONCLUSION

3. IN AGREEMENT HERETO, Region 24 and Region 39 do hereunto set their signatures the day and year first above written.

Respectfully,

[all signatories to agreement]

John W. Johnson

Region 39 Chairman

Mark Blum Region 24

Date: 1-31-05

# Appendix I

## DTV transition

### Frequency Availability through the DTV Transition

(NOTE: DTV transition continues to be a topic discussed across the country. Region 24 is fortunate to be relatively unencumbered with regard to primary 700 MHz licensee broadcasters operating high power analog TV stations on channels 63-64 or 68-69. KSMO-TV Channel 62 operates in the Kansas City area and will encumbered some of the 63-68 channel pair in the Kansas City operating area. Region 24 will continue to distribute DTV transition information to its members.

*4.1.1.1.1 On August 14, 1996, the FCC released a Sixth Further Notice of Proposed Rule Making in the digital television (DTV) proceeding. A portion of the spectrum recovered from TV channels 60-69 when DTV is fully deployed "could be used to meet public safety needs."<sup>3</sup> By Congressional direction in the Balanced Budget Act of 1997, the FCC reallocated 24 MHz of spectrum to Public Safety services in the 764-776 MHz and 794-806 MHz bands. The statute required the FCC to establish service rules, by September 30, 1998, in order to start the process of assigning licenses. The rules that the FCC established by September 30, 1998, "provided the minimum technical framework necessary to standardize operations in this spectrum band, including, but not limited to: (a) establishing interference limits at the boundaries of the spectrum block and service areas; (b) establishing technical restrictions necessary to protect full-service analog and digital television service during the transition to digital television services; (c) permitting public safety licensees the flexibility to aggregate multiple licenses to create larger spectrum blocks and service areas, and to disaggregate or partition licenses to create smaller spectrum blocks or service areas; and (d) ensuring that the new spectrum will not be subject to harmful interference from television broadcast licensees"<sup>4</sup>.*

---

<sup>3</sup> Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rule Making*, 11 FCC Rcd 10,968, 10,980 (1996) (*DTV Sixth Notice*).

<sup>4</sup> FCC 98-191, 1st R&O and 3rd NPRM on WT Docket No. 96-86 Operational & Technical Requirements for the 700 MHz Public Safety Band, para.4.



In April 1997, the FCC assigned a second 6 MHz block of spectrum to each license (or permit to construct) holders of full power, analog, television broadcast station (NTSC) in order to construct a digital television station (DTV). Secondary low power television stations (LPTV), secondary translators and boosters (TX), mutually exclusive applications for new stations, and application filed after a cut-off date did not receive a second 6 MHz allotment for DTV. The FCC established about a 10 year timeline for those stations with a DTV assignment to construct a DTV station, cease NTSC transmissions, and return one of the two 6 MHz blocks of spectrum to the FCC. Target date for the end of analog television (NTSC) transmission was set for December 31, 2006.

Congress provided several market penetration loopholes (>85% households served, all 4 major networks converted, etc) allowing NTSC operations to continue past the December 31, 2006 date. While there are over 100 NTSC full power stations in this band, there are also about 12 DTV assignments. The DTV assignments might continue operations past the December 31, 2006 date for two reasons. 1) They must find a suitable channel below channel 60 to move to, which may be their own NTSC assignment. They may not be able to find another allocation until other NTSC stations have ceased operations and returned a channel below 60 to the FCC. Or, 2) their license does not expire until after 2006 (most are licensed into 2007 or 2008).

### **Protection of Public Safety from future TV/DTV Stations**

Public safety base and mobile operations must have a safe distance between the co-channel or adjacent TV and DTV systems. This typically means that a co-channel and adjacent channel base and mobile system cannot operate in areas where TV stations already exist. The public safety systems that will operate in the 700 MHz band for some locations in the U.S. and its possessions must wait until the transition period is over and the TV/DTV stations have moved to other channels before beginning operations. In other areas, channels will be available for public safety operations. During the transition period, public safety stations must be acutely aware of the TV allocations for both TV and DTV stations. The FCC wants the number of situations where the public safety licensee has to coordinate its station with the existing TV stations kept to a minimum. The Commission's decisions in the reallocation of spectrum to DTV implemented two requirements, which will help public safety systems to protect TV/DTV stations and reduce the number of coordination's. The first requirement is that full power UHF-TV stations can no longer apply for channels 60-69 or modifications in channels 60-69, which would increase the stations' service areas, which creates a known environment for public safety licensees. The second requirement is that since only existing TV station licensees can apply for DTV channels, the applicants and their proposed locations are already known.

Also, the low power TV stations and translators already on channels 60-69 are secondary and must cease operations if they cause harmful interference when a primary service, like land mobile, comes into operation. The secondary Low Power TV stations already on channels 60-69 cannot apply for the new Class A protection status.

## Spectrum Overview

### 700 MHz Public Safety Band - 24 megahertz of spectrum

TV 61	TV 62	TV 63	TV 64	TV 65	TV 66	TV 67	TV 68	TV 69	806-824 LMR Band
		Public Safety 6 MHz	Public Safety 6 MHz				Public Safety 6 MHz	Public Safety 6 MHz	

764 MHz	770	776	794 MHz	800	806
<b>NB</b> <b>3 MHz</b>	<b>WB</b> <b>6 MHz</b>	<b>NB</b> <b>3 MHz</b>	<b>NB</b> <b>3 MHz</b>	<b>WB</b> <b>6 MHz</b>	<b>NB</b> <b>3 MHz</b>

**NB** = narrowband channels

**WB** = wideband channels

The FCC designated 764-776 MHz (TV Channels 63 and 64) for base-to-mobile transmissions and 794-806 MHz (TV Channels 68 and 69) for mobile-to-base communications. In addition, base transmit channels in TV Channel 63 are paired with mobile channels in TV Channel 68 and likewise that base channels in TV Channel 64 are paired with mobile channels in TV Channel 69. This provides 30 MHz separations between base and mobile transmit channel center frequencies. This band plan was suggested because of the close proximity of TV Channels 68 and 69 to the 806-824 MHz band, which already contains the transmit channels for mobile and portable radios (base receive).

Mobile transmissions are allowed on any part of the 700 MHz band, not just the upper 12 MHz. This will facilitate direct mobile-to-mobile communications (*i.e.*, not through a repeater) that are often employed at the site of an incident, where wide area communications facilities are not available or desired. Allowing mobile transmissions on both halves of a paired channel is generally consistent with FCC rules governing use of other public safety bands.

#### Non-uniform TV Channel Pairing

There are currently geographical areas where, either licensed or otherwise protected full-service analog or new digital, television stations are currently authorized to operate on TV Channels 62, 63, 64, 65, 67, 68, and 69.<sup>5</sup> During the DTV transition period, an incumbent TV station occupying one or more of the four Public Safety channels (63, 64, 68, 69) or the three adjacent channels (62, 65, 67) may preclude pairing of the channels in accordance with the band plan defined above. Therefore, to provide for cases where standard pairing is not practicable during the DTV transition period, the FCC will allow the RPCs to consider pairing base-to-mobile channels in TV Channel 63 with mobile-to-base channels in TV Channel 69 and/or base-to-mobile channels in

<sup>5</sup> See *Reallocation, Notice of Proposed Rule Making*, 12 FCC Rcd at 14,141, 14,177-78 and 14,182-83.

TV Channel 64 with mobile-to-base channels in TV Channel 68. Because such non-standard channel pairing may cause problems when the band becomes more fully occupied, the FCC expects the RPCs to permit such non-standard channel pairing only when absolutely necessary, and the FCC may require stations to return to standard channel pairing after the DTV transition period is over. However, the FCC will not permit non-standard channel pairing on the nationwide interoperability channels in the 700 MHz band because of the need for nationwide uniformity of these channels.

At least three issues must be considered before deciding upon non-uniform channel pairing:

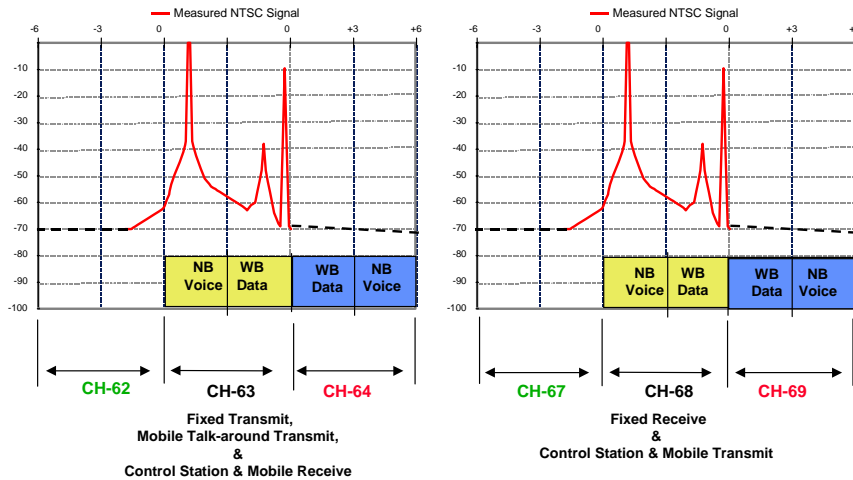
- 1) Preliminary analysis, looking at current incumbent TV stations, shows few geographic areas where non-uniform pairing allows early implementation of 700 MHz systems. As DTV Transition progresses, and TV stations vacate the band, this situation might change.
- 2) If interoperability channels must be uniform, operation on I/O channels will be blocked until all incumbent TV stations are cleared, even though General Use channels may be implemented earlier.
- 3) If I/O channels must follow uniform pairing, and general use & reserve channels can be implemented using non-uniform pairing, narrowband voice subscriber equipment must operate on 3 different channel pairings - 39 MHz (764-767 paired with 803-806 MHz), 30 MHz, and 21 MHz (773-776 paired with 794-797 MHz). Likewise, there will be 3 different channel pairing for wideband channels. No vendors have volunteered to build equipment & systems for non-uniform pairing, yet.

### **TV/DTV Protection**

During the DTV Transition period, public safety must consider all co-channel and adjacent channel TV and DTV stations within about a 160 mile radius.

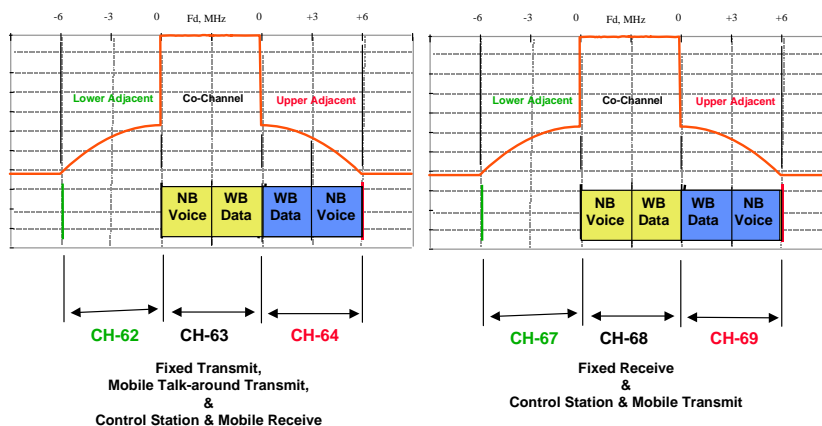
For public safety channel pair 63/68, public safety must consider six TV/DTV channels - co-channels 63 and 68, as well as, adjacent channels 62, 64, 67, and 69.

## Measured (off-the-air) Analog TV Signal vs 700 MHz Public Safety Assignments



**HAVE 2 CO-CHANNEL AND 4 ADJACENT CHANNELS  
TO CONSIDER FOR EACH 700 MHz PAIRED BLOCKS OF SPECTRUM**

## DTV Emission Mask vs 700 MHz Public Safety Assignments



**HAVE 2 CO-CHANNEL AND 4 ADJACENT CHANNELS  
TO CONSIDER FOR EACH 700 MHz PAIRED BLOCKS OF SPECTRUM**

For public safety channel pair 64/69, public safety must consider five TV/DTV channels; co-channels 64 and 69, as well as, adjacent channels 63, 65, and 68.

It may only take one TV/DTV station to block operations on one, the other, or both public safety channel pairs. For a public safety system at 500 watts ERP and 500 ft HAAT, co-channel TV stations can block a 120 mile radius and adjacent channel TV/DTV stations can block a 90 mile radius.

Since base stations transmitters are located only on channels 63 and 64, LMR mobile only TV/DTV protection spacing on channels 68 and 69 may be shorter than LMR base TV/DTV protection on channels 63 & 64.

### **TV/DTV Protection Criteria**

Public safety applicants can select one of three ways to meet the TV/DTV protection requirements: (1) utilize the geographic separation specified in the 40 dB Tables of 90.309; (2) submit an engineering study to justify other separations which the Commission approves; or (3) obtain concurrence from the applicable TV/DTV station(s).

### **90.309 40 dB D/U Tables**

The FCC adopted a 40 dB desired (TV/DTV) to undesired (LMR) signal ratio for co-channel operations and a 0 dB desired/undesired (D/U) signal ratio for adjacent channel operations. The D/U ratio is used to determine the geographic separation needed between public safety base stations and the Grade B service contours of co-channel and adjacent channel TV/DTV stations. The D/U signal ratio is used to determine the level of land mobile signals that can be permitted at protected fringe area TV receiver locations without degrading the TV picture to less than a defined picture quality. In other words, the D/U signal ratio indicates what relative levels of TV and land mobile signals can be tolerated without causing excessive interference to TV reception at the fringe of the TV service area.

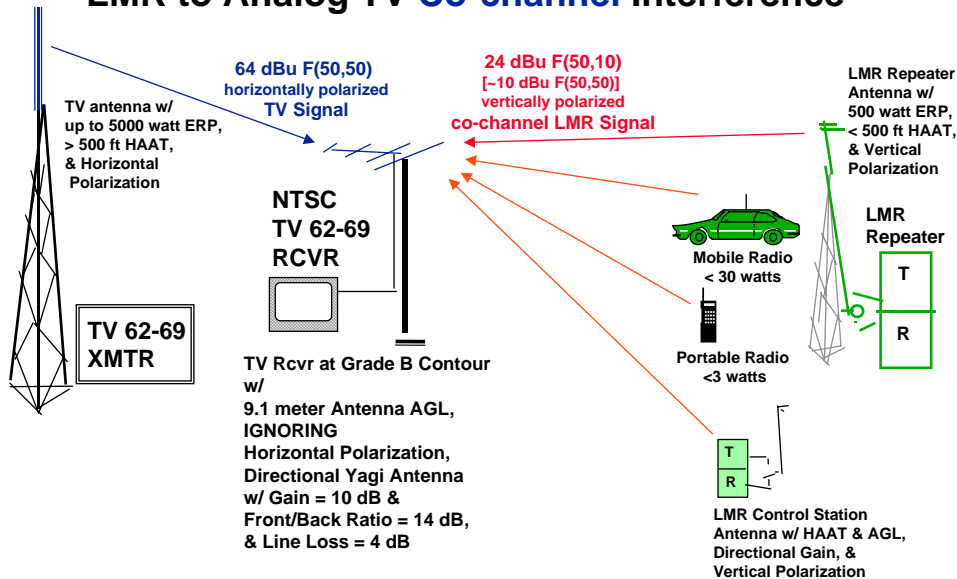
Desired and undesired contours are not quite the same thing. Desired analog TV contours are defined as F(50,50), meaning coverage is 50% of the places and 50% of the time. Undesired land mobile or interference contours are defined as F(50,10). For Digital TV, the desired contours are defined as F(50,90), while the undesired land mobile contour are still F(50,10).

Land mobile and analog TV services have successfully shared the 470-512 MHz band (TV Channels 14-20) within a 50 mile radius of eleven major cities since the early 1970's based upon providing a signal ratio of at least 50 dB between the desired TV signal and undesired co-channel land mobile signal (D/U signal ratio) at a hypothetical 88.5 km (55 mi) Grade B service contour and an adjacent channel D/U signal ratio of 0 dB at the same hypothetical Grade B service contour. These separation distances also protected the land mobile systems from interference from the TV stations. In 1985, recognizing that 50 dB D/U was too conservative, the FCC proposed to expand land mobile/TV sharing to other TV channels and proposed that the geographic separation requirements for co-channel operations be based on a D/U signal ratio of 40 dB rather than 50 dB. That proceeding was put on hold pending completion of the DTV proceeding, which has now been completed. In the 470-512 MHz band, the FCC also relied on minimum separation distances based on the various heights and powers of the land mobile stations (HAAT/ERP separation tables) to prevent harmful interference.

Since this simple, yet conservative, method was successful, the FCC decided to use this same method, the 90.309 HAAT/ERP Separation Tables, to administer LMR to TV/DTV receiver protection criteria for the services in the 700 MHz band.

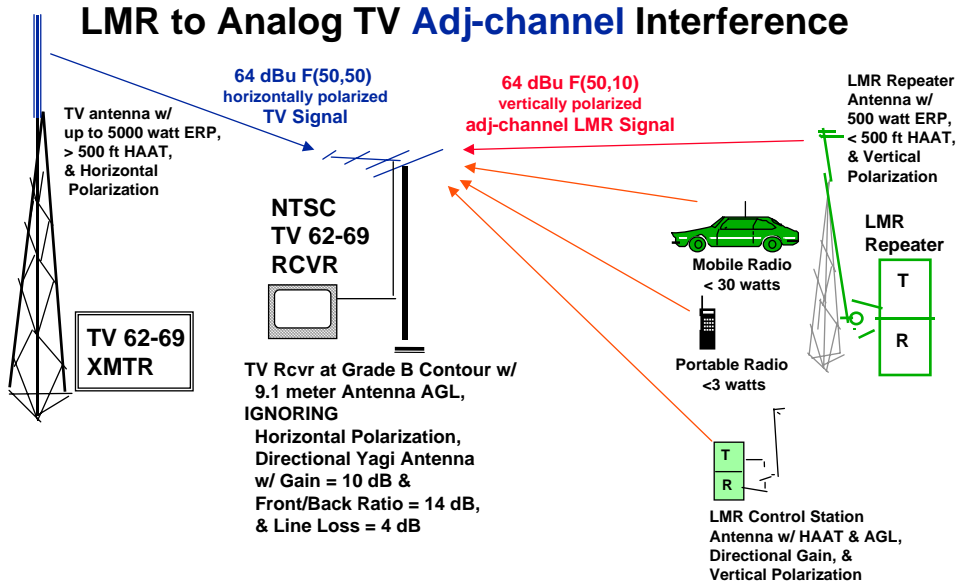
Co-channel land mobile base station transmitters are limited to a maximum signal strength at the hypothetical TV Grade B contour 40 dB D/U below desired 64 dBu F(50,50) analog TV signal level, or 24 dBu F(50,10). The FCC adopted a 0 dB D/U signal ratio for adjacent channel operations. Adjacent channel land mobile transmitters will be limited to a maximum signal of 64 dBu F(50,10) which is 0 dB D/U below the TV Grade B signal of 64 dBu F(50,50) at the TV station Grade B contour of 88.5 km (55 miles). A typical TV receiver's adjacent channel rejection is at least 10-20 dB greater than this level, which will further safeguards TV receivers from land mobile interference.

### LMR to Analog TV Co-channel Interference



4.2

### LMR to Analog TV Adj-channel Interference



The equivalent ratios for a DTV station's 41 dB F(50,90) desired field strength contour are land mobile 17 dB F(50,10) contour for co-channel and land mobile - 23 dB F(50,10) contour for adjacent channel.

The Tables to protect TV/DTV stations are found in Section 90.309 of the Commission's rules. These existing Tables cover co-channel protection based on a 40 dB D/U ratio using the separation methods described in Section 73.611 of the Commission's rules for base, control, and mobile stations, and for adjacent channel stations for base stations based on a 0 dB D/U ratio.

However, the original considerations in 470-512 MHz band under Section 90.309 were different in that mobiles were limited in their roaming distance from the base station (less than 30 miles) and mobiles were on the same TV channel as the base station.

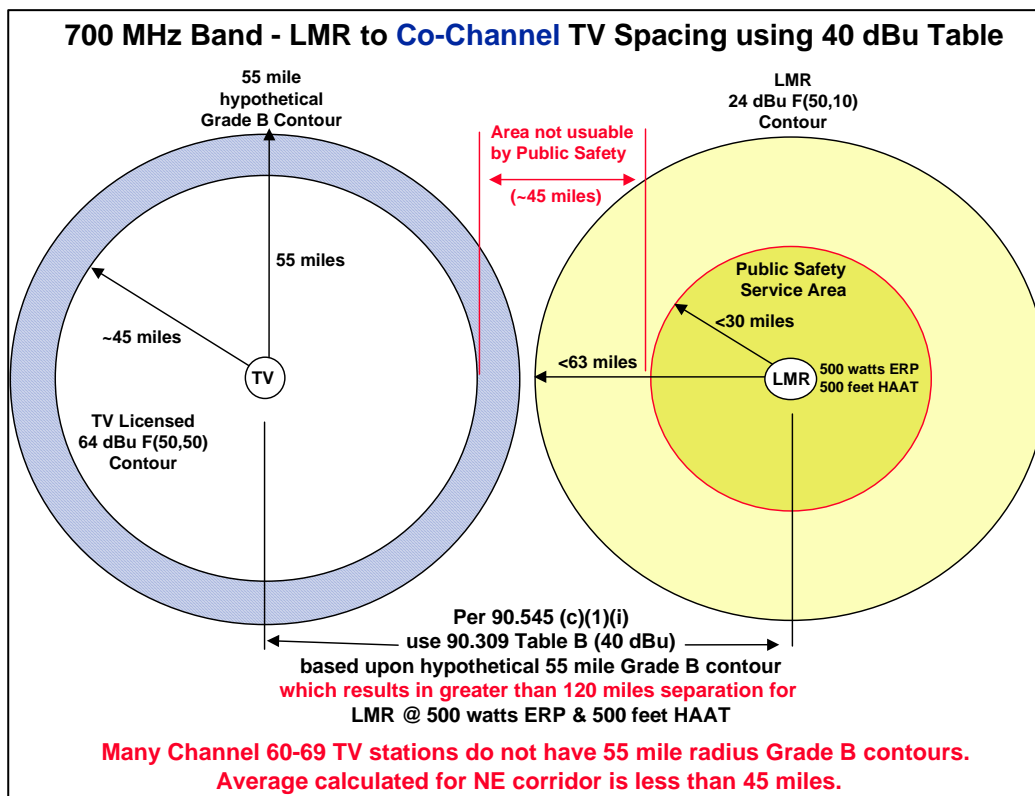
Control and mobile stations (including portables) are limited in height (200 ft for control stations, 20 ft for mobiles/portables) and power (200 watts ERP for control stations, 30 watts for mobiles, 3 watts for portables). Mobiles and control stations shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection for TV and 17 dB for DTV) in § 90.309.

Control stations and mobiles/portables shall keep a minimum distance of 8 kilometers (5 miles) from all adjacent channel TV/DTV station hypothetical or equivalent Grade B contours (adjacent channel frequencies based on 0 dB protection for TV and -23 dB for DTV). This means that control and mobile stations shall keep a minimum distance of 96.5 kilometers (60 miles) from all adjacent channel TV/DTV stations.

Since operators of mobiles and portables are able to move and communicate with each other, licensees or coordinators must determine the areas where the mobiles can and cannot roam in order to protect the TV/DTV stations, and advise the mobile operators of these areas and their restrictions.

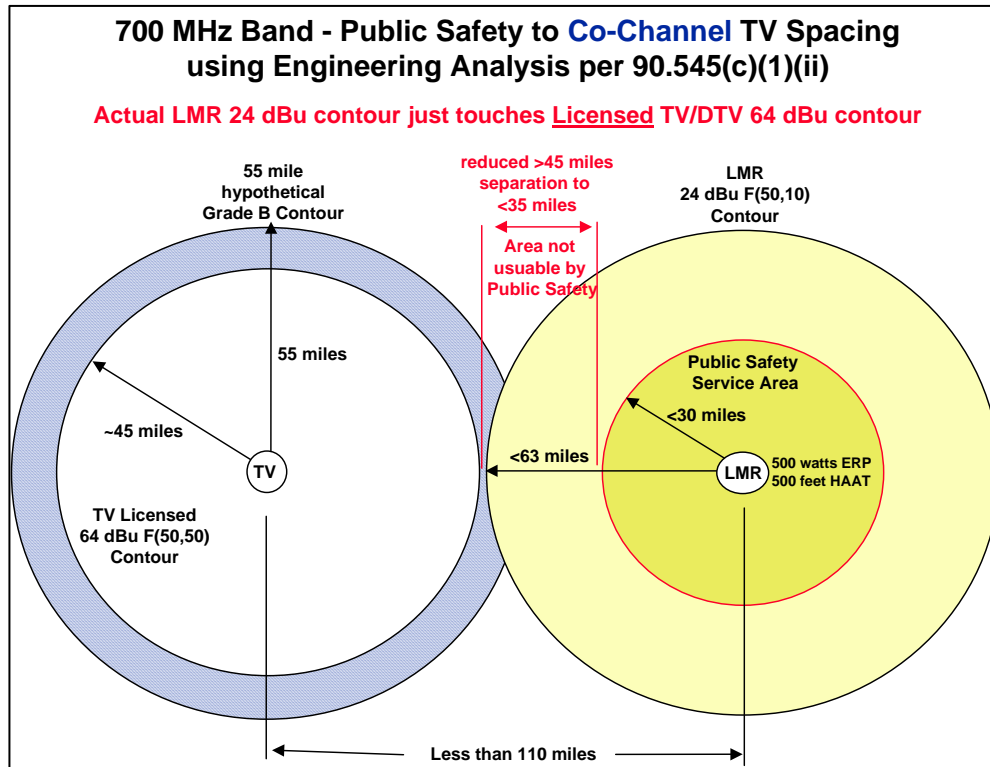
### **Engineering Analysis**

Limiting TV/land mobile separation to distances specified in the 40 dB HAAT/ERP Separation Tables found in 90.309 may prevent public safety entities from fully utilizing this spectrum in a number of major metropolitan areas until after the DTV transition period ends. Public safety applicants will be allowed to submit engineering studies showing how they propose to meet the appropriate D/U signal ratio at the existing TV station's authorized or applied for Grade B service contour or equivalent contour for DTV stations instead of the hypothetical contour at 88.5 km.



This would permit public safety applicants to take into account intervening terrain and engineering techniques such as directional and down-tilt antennas in determining the necessary separation to provide the required protection. Public safety applicants who use the engineering techniques must consider the actual TV/DTV parameters and not base their study on the 88.5 km hypothetical or equivalent Grade B contour. If land mobile interference contour does not overlap the TV Grade B contour (or DTV equivalent), then engineering analysis may be submitted to the FCC with the application.

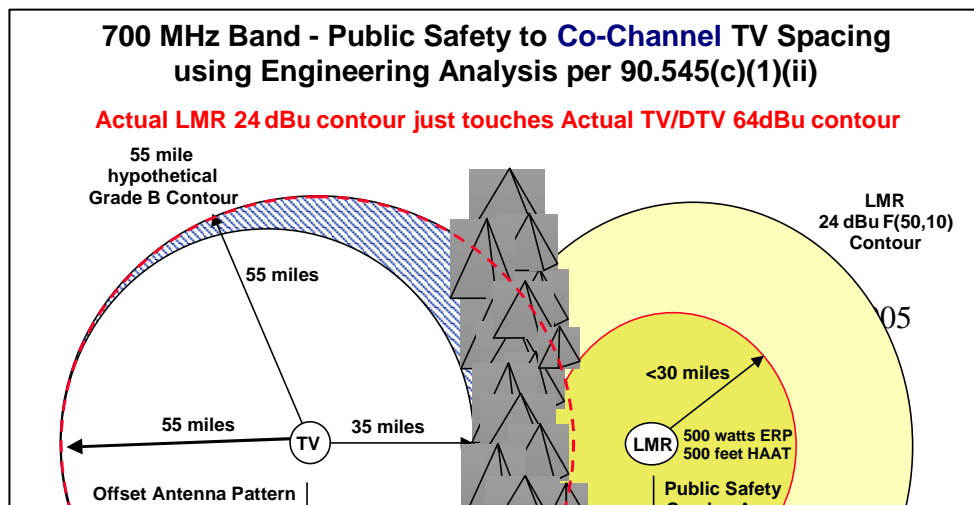




#### 4.3

4.4 This method is most useful with lower power TV stations whose Grade B contours are much smaller than the hypothetical 55 mile (88.5 km) Grade B contour or have directional patterns.

4.5 Note that 200 ft AGL limitations on 700 MHz control stations is much higher than the 100 ft AGL



*limitation used at UHF. Limiting control station antenna height and/or ERP may greatly reduce land mobile to TV contour spacing.*

Also, note that analysis for TV/DTV receivers uses 30 ft (10 m) antenna height whereas, analysis for land mobile subscribers uses about a 6 ft (2m) antenna height.

### **TV/DTV Short-spacing**

*4.6 Public safety applicants will also be allowed to "short-space" even closer if they get the (written) approval of the TV stations they are required to protect. Public safety applicants need to determine the station's intended market area vs its hypothetical Grade B contour area. Alternately, the TV/DTV station may be short-spaced against another TV/DTV station, limiting their area of operation, but does not affect LMR operations.*

*4.7 Instead of each agency negotiating with a TV/DTV station individually, they may want to combine into a single group or committee and negotiate together.*

### **TV/DTV Height Adjustment Factor**

*4.8 In order to protect certain TV/DTV stations which have extremely large contours due to unusual height situations, such as a television station mounted on top of Mount Wilson near Los Angeles, California, the FCC incorporated an additional height adjustment factor which must be used by all public safety base, control and mobile stations to protect these few TV/DTV stations and afford the land mobile stations the necessary protection from the TV/DTV stations. The equation necessary to calculate the additional distance from the hypothetical or equivalent Grade B contour is found in the rules section 90.545(c)(2)(iii).*

### **CANADIAN AND MEXICAN BORDER REGIONS**

The FCC typically takes one of two approaches. They either postpone licensing of land mobile stations within a certain geographic distance (e.g., 120 km (75 miles)) of Canada and Mexico, or permit interim authorizations conditioned on the outcome of future agreements. Because international negotiations can take many months or even years to finalize, the FCC took the later approach and adopted certain interim requirements for public safety licenses along the Canada and Mexico borders, providing that the licenses are subject to whatever future agreements the United States develops with the two countries.

Nevertheless, existing mutual agreements with Canada and Mexico for the use of these bands for UHF television must be recognized until further negotiations are completed. The US negotiated an agreement with Mexico of DTV operations near the US/Mexican border in July 1998. The US just negotiated an agreement with Mexico of DTV operations, and limited non-broadcast operations on 746-806 MHz, near the US/Canadian border in September 2000. Existing agreements recognize existing TV and/or DTV allotments and planning factors within a specified distance of the border. The Canadian Letter of Understanding also acknowledges that US plans to use 746-806 MHz for non-broadcast purposes and provides planning criteria (40 dB D/U) to protect Canadian TV/DTV receivers.

Additionally, public safety facilities within the United States must accept interference from authorized channel 60-69 TV transmitters in Canada and Mexico in accordance with the existing agreements. Since the locations of the Canadian and Mexican analog TV assignments and DTV allotments are known, the public safety applicants can consider the levels of harmful interference to expect from Canadian and Mexican TV/DTV stations when applying for a license. Both Canada

and Mexico have been informally notified that the Commission has changed its allocated use of TV channels 60-69, and the Commission will discuss the possibility of mutually compatible spectrum use with Canada and Mexico.

## **Appendix J   Meeting Announcements**

This Region 24 700 MHz Regional Planning Committee report is a documentation of the Region 24 700 MHz process. Every item in this document has been reviewed and is pertinent to public safety 700 MHz implementation in Missouri and in accordance with plans for allowing 700 MHz channels to be used in Missouri's adjacent states of Arkansas, Oklahoma, Kentucky, Tennessee, Illinois, Kansas, Nebraska and Iowa. We look forward to working with the regional planning committees in these states to better the potential for public safety to have the tools available to complete their mission of protecting life and property in their respective states.

Regards,

STEPHEN T. DEVINE

Chairperson, Region 24 Regional Planning Committee  
Missouri State Highway Patrol

March 7, 2005

.

August 30, 2000

Chief, Wireless Telecommunications Bureau  
% The Public Safety and Private Wireless Division  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Gentlemen:

This letter is to provide you with information regarding appointment of a new Regional Chairperson for the NPSPAC Region 24, Missouri. Stephen T. Devine, Frequency Coordinator for the Missouri State Highway Patrol in Jefferson City, Missouri was elected into office on June 7, 2000, in Jefferson City by the NPSPAC Region 24 Committee members in attendance. Mr. Devine has assumed the role of acting NPSPAC 800 Mhz Regional Planning Committee Chair after being asked to fulfill the duties of the former Region 24 Chair, Mr. John Gerke. Mr. Gerke asked Mr. Devine to take the position on March 20, 2000, as he was suffering from serious medical conditions. Mr. Devine's contact information is as follows:

Title: Stephen T. Devine - Missouri State Highway Patrol  
Communications Division, Patrol Frequency Coordinator  
Local APCO Advisor-Missouri

Address: Missouri State Highway Patrol General Headquarters  
P.O. Box 568  
Jefferson City, Missouri 65101  
ATTN: Communications Division

Phone: 573 526-6105

Fax: 573 526-1112

E Mail: sdevine@mail.state.mo.us

Committee members in attendance on June 7, 2000, were:  
Mr. Michael Redman, Communications Coordinator, St Louis County Police  
Mr. Ron Shook, Emergency Management Agency, Greene County Missouri  
Mr. Bill Cade, Jasper County 911, Jasper County Missouri  
Mr. Chris Teel, Springfield/Greene County 911

August 30, 2000  
Chief, Wireless Telecommunications Bureau  
-2

Mr. J. R. Webb, Greene County Sheriff's Office, Greene County Missouri  
Mr. James C. Biggerstaff, Director of Radio, Missouri State Highway  
Patrol  
Mr. James A. Lundsted, Chief Projects Engineer, Missouri State Highway  
Patrol  
Mr. Charles Gastler, Manager Communications Support, St. Louis  
Metropolitan Police Department  
Mr. Stephen T. Devine, Patrol Frequency Coordinator, Missouri State  
Highway Patrol

Later in the day on June 7, 2000, the Region 24 700Mhz Committee was convened.  
Mr. Devine was elected to Chair that committee as well.

Please feel free to post Mr. Devine's contact information on the Wireless  
Telecommunications Bureau's web page to provide a contact person for any parties  
interested in participating in either the Region 24 800 Mhz or the Region  
24 700 Mhz Regional Planning Committees.

If there are questions with regard to these proceedings, Mr. Devine can be  
contacted at the number listed above.

JAMES C BIGGERSTAFF, Director  
Communications Division

STD:rkb

## **Region 24 NPSPAC Planning Committee Meeting**

**To: Public Safety/Service agencies**

**From: Stephen T. Devine, NPSPAC Region 24  
Chairperson**

**Subject: NPSPAC Committee meeting**

**Where: Missouri State Highway Patrol General  
Headquarters, 2<sup>nd</sup> floor meeting room  
Jefferson City, Missouri**

**When: Wednesday, June 7 2000**

**Time: 10am to 3pm**

**Why: Items to be discussed:**

- 1. Update on current NPSPAC applications**
- 2. Election of new Committee Chair**
- 3. National planning requirements**
- 4. Creation of new 700 Mhz committee**

**If you have questions, contact Stephen Devine at 573-526-6105 or E mail [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)**

# MISSOURI STATE HIGHWAY PATROL

a division of the

## DEPARTMENT OF PUBLIC SAFETY

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Public Information & Education Division - P.O. Box 568 - Jefferson City, MO 65102

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### NEWS RELEASE

For further information please contact: Mr. Stephen Devine

Q8006

(573) 526-6105

August 28, 2000

**EMPHASIS:** Patrol Promotes NPSPAC Planning Committees

The Missouri State Highway Patrol would like to invite public safety agencies throughout Missouri to attend a meeting of the Region 24 National Public Safety Planning Advisory Committee (NPSPAC). This meeting will take place from 10 a.m. to 12 p.m. on October 5, 2000 at the Missouri State Highway Patrol General Headquarters Building, 1510 E. Elm Street in Jefferson City, MO, 65102. The NPSPAC Committee is an ad-hoc committee open to all public safety/public service entities interested in the 821-824Mhz Plan. Region 24 encompasses the entire state and was created in July 1993 with the intent of improving public safety communications by using dedicated 800Mhz spectrum.

Topics for this meeting include the election of a committee secretary and updates on applications requesting NPSPAC frequencies within Region 24. Lunch will not be served, but a break in the meeting will allow time for lunch.

After lunch, all interested parties are invited to participate in the Region 24 700Mhz Committee from 1 p.m. to 3 p.m. This committee was formed in June 2000 to provide a mechanism for public safety agencies in Missouri to follow implementation of newly acquired 700Mhz spectrum, and comment on the guidelines for this spectrum being established by the national coordinating committee.

Both meetings will be chaired by the NPSPAC 800Mhz and 700Mhz Chairperson Stephen T. Devine, frequency coordinator with the Communications Division of the Missouri State Highway Patrol.

(###)

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# Region 24 700 Mhz planning meeting

**Posted By: Stephen Devine** <[sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)>

**Date: Thursday, 24 August 2000, at 4:29 p.m.**

On October 5, 2000, a 700Mhz planning meeting is scheduled for all interested public safety/public service entities in the 746-806 Mhz Region 24 (Missouri) Plan. The meeting is scheduled from 10am-3pm and will take place at the Missouri State Highway Patrol Headquarters, 1510 E Elm Street in Jefferson City, Missouri 65102.

Topics for the meeting include a secretary for the committee being selected, as well as updates on the status of the NCC and its most recent findings.

The meeting will be convened by the Committee Chair, Stephen Devine, Frequency Coordinator for the Missouri State Highway Patrol.

If there are any questions regarding this meeting, Mr. Devine can be contacted at 573 526 6105.

<b>Post Response</b>	
<hr/>	
<b>Your Name:</b>	<input type="text" value="Stephen Devine"/>
<b>E-Mail Address:</b>	<input type="text" value="sdevine@mail.state.mo.us"/>
<b>Subject:</b>	<input type="text" value="Re: Region 24 700 Mhz pla"/>
<b>Message:</b>	
<div><div></div><div></div></div>	
If you'd like to include a link to another page with your message, please provide both the URL address and the title of the page:	
<b>Optional Link URL:</b>	<input type="text" value="http://"/>
<b>Optional Link Title:</b>	<input type="text"/>
If you'd like to include an image (picture) with your message, please provide the URL address of the image file:	
<b>Optional Image URL:</b>	<input type="text" value="http://"/>
If you'd like e-mail notification of responses, please check this box: <input checked="" type="checkbox"/>	



**Subject: apco-700rpc test**

**Date:** Thu, 24 Aug 2000 17:06:12 -0400

**From:** "Ron Haraseth" <harasethr@apco911.org>

**To:** <apco-700rpc@apco911.org>

Region 24 700 MHz planning meeting

Posted By: Stephen Devine <sdevine@mail.state.mo.us>

Date: Thursday, 24 August 2000, at 4:29 p.m.

On October 5, 2000, a 700Mhz planning meeting is scheduled for all interested public safety/public service entities in the 746-806 MHz Region 24 (Missouri) Plan. The meeting is scheduled from 10am-3pm and will take place at the Missouri State Highway Patrol Headquarters, 1510 E Elm Street in Jefferson City, Missouri 65102.

Topics for the meeting include a secretary for the committee being selected, as well as updates on the status of the NCC and its most recent findings.

The meeting will be convened by the Committee Chair, Stephen Devine, Frequency Coordinator for the Missouri State Highway Patrol.

If there are any questions regarding this meeting, Mr. Devine can be contacted at 573 526 6105.

MR MC15 14.30 11/21/00

MLTs

001 MC15 1430 112100 STD

REQUEST STATEWIDE BROADCAST

A MEETING OF THE MISSOURI REGION 24 NPSPAC COMMITTEE WILL TAKE PLACE ON JANUARY 11, 2001 AT THE ST. LOUIS COUNTY EMERGENCY OPERATIONS CENTER IN CHESTERFIELD, MISSOURI. NPSPAC STANDS FOR NATIONAL PUBLIC SAFETY PLANNING ADVISORY COMMITTEE, AN AD-HOC COMMITTEE THAT WAS FORMED IN 1993 WITH THE INTENT OF IMPROVING PUBLIC SAFETY COMMUNICATIONS BY USING DEDICATED 800MHZ SPECTRUM. TOPICS FOR THIS MEETING INCLUDE UPDATES ON APPLICATIONS PENDING BEFORE THE COMMITTEE AND A REVIEW OF REGULATORY ISSUES CONCERNING FUTURE NPSPAC FREQUENCY ALLOCATIONS.

A BREAK FOR LUNCH WILL BE PROVIDED. BEGINNING AT 12 P.M., THE 700MHZ REGION 24 NPSPAC COMMITTEE WILL CONVENE. THIS COMMITTEE WAS FORMED IN JULY 2000 TO PROVIDE A MECHANISM FOR PUBLIC SAFETY AGENCIES IN MISSOURI TO FOLLOW IMPLEMENTATION OF NEWLY ACQUIRED 700MHZ SPECTRUM, AND COMMENT ON THE GUIDELINES FOR THIS SPECTRUM BEING ESTABLISHED BY THE NATIONAL COORDINATING COMMITTEE (NCC). AS THE NCC WILL BE FORWARDING MANY OF ITS CONCLUSIONS ON 700MHZ STANDARDS TO THE FEDERAL COMMUNICATIONS COMMITTEE IN FEBRUARY 2001, THE REGION 24 MEETING IN JANUARY SHOULD PROVIDE ATTENDEES WITH UP-TO-DATE  
&PN

INFORMATION. FOR FURTHER INFORMATION, CALL REGION 24 CHAIRPERSON AND PATROL  
FREQUENCY COORDINATOR STEPHEN T. DEVINE AT 573 526 6105.

MISSOURI STATE HIGHWAY PATROL COMMUNICATIONS

DMR  
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ETC

# MISSOURI STATE HIGHWAY PATROL

## A Division Of The Department of Public Safety

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### NEWS RELEASE

**For further information please contact:** Captain C. T. Ricks  
Q10014 (573) 526-6115

October 15, 2001

#### **EMPHASIS: Patrol Announces NPSPAC Meeting**

On Thursday, January 10, 2001, a meeting of the Region 24 National Public Safety Planning Advisory Committee (NPSPAC) committees for 700 MHz and 800 MHz is scheduled to take place. The meetings will be held in the second floor conference room at the Missouri State Highway Patrol General Headquarters.

The 800 MHz meeting begins at 9 a.m. Updates on progress regarding the availability of available 800 MHz allotments in the St. Louis metropolitan area will be discussed. The meeting will update members of the RPC regarding the ongoing discussions with Region 13 pool allotments in St. Louis, St. Charles, Jefferson, and Franklin counties, and the city of St. Louis. A discussion on the submission of a new region 24 800 MHz plan to the FCC which would reflect changes in pool allotments from the current Region 24 plan is anticipated. A discussion is planned on availability of narrowband spectrum throughout Missouri and whether or not Region 24's new plan should reflect pool allotments using both wideband (16K) and narrowband (11K) emissions.

The Region 24 700 MHz meeting will begin at 1 p.m. The following items are on the agenda:

- Acceptance of bylaws for Region 24 700 MHz plan;
- Final decisions on content of regional plan;
- Development of criteria needed for applicant eligibility;
- Update on NCC progress and current status of 700 MHz;
- Current availability of 700 MHz;
- Current availability of 700 MHz public safety spectrum in Missouri; and,
- Considering incumbent broadcasters.

Questions on either of these two meetings should be directed to the chairperson of Region 24, Stephen T. Devine, at (573) 526-6105 or [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us).

(###)

**Region 24 700 MHz Committee**

January 11, 2001

Region 24 700 MHz Meeting Called to order at 11:30 by Chairman Devine.

Parties in attendance:

Name/ Agency	Address	Phone	Fax	e-mail
Steve Devine, MSHP	P.O. Box 568 Jefferson City, Mo 65102	573-526-6105		
Corey Chaney, MSHP	599 S. Mason St. Louis, Mo 63141	314-340-4000	314-340-4010	jcoreyc@enverce.net
Scott Bigham, MSHP	599 S. Mason St. Louis, Mo 63141	314-340-4066	314-340-4010	wearejbs@earthlink.net
Rodney C. Zerr St. Charles County EMA	301 N Second St., Rm. 280 St. Charles, Mo 63301	636-949-3023	636-949-3021	ctyema@win.org
Steven J. Makky, Sr. St. Charles County EMA	301 N Second St., Rm. 280 St. Charles, Mo 63301	636-949-3031	636-949-3021	scc911@win.org
Tom Dollus MoDOT	1590 Woodlake Dr., Chesterfield, Mo 63017-5712	314-340-4511	314-340-4509	dollut@mail.modot.state.mo.us
Tim Bechler, Central County Emergency 911	22 Weis Av., Ellisville, Mo 63011	636-207-7911	636-394-1407	mturner@cce911.org
Roger Strobe, MSHP	P.O. Box 568 Jefferson City, Mo 65102	573-526-6104	573-526-1112	stropr@mshp.state.mo.us
Richard Stump, SEMA	P.O. Box 116 Jefferson City, Mo 65102	573-526-9201	573-634-7966	rstump@mail.state.mo.us
Dan Rowden, St. Charles Co. Dept. of Dispatch	1605 Wentzville Parkway, Wentzville, Mo 63385	636-949-3042	636-949-3019	drowden@win.org
Sgt. Mike Clinard, St. Peters Police	1020 Kimberley, St. Peters, Mo	636-477-6600 x 543	636-278-5276	mclinard@ci.st-peters.mo.us
David Wunderlin	1122 Illinois #104, Joplin, Mo, 64801	417-781-8631 800-806-9259	417-781-8631	wunderlin@joplin.com
William Cade	Jasper Co. 911 P.O. Box 801 Carthage, Mo 64862	417-538-7000 x 3300	417-359-9116	jc911@4state.com

Terry Buhr	5691 Sunnywood Dr, Cedar Hill, Mo 63016	636-274-4986	636-285-0406	terry.buhr@motorola.com
Jon Martin	P.O. Box 904 St. Peters, Mo	636-970-7904	636-279-3309	jon.martin@motorola.com
Keith Kemmerline	2995 Telber Ct., Stow, Oh 44224	330-678-0960	707-276-1149	k.kemmerline@ motorola.com
Drew Juden	215 N. New Madrid Sikeston, Mo 63801	573-471-6200	573-471-7872	drewj@sikeston.org
Mike Redman St. Louis County Police	7900 Forsyth Clayton, Mo 63105	314-615-5362	314-615-4698	michael_redman@stlouisco.com
William Bauer North Central Fire Dispatch	3280 McKibbin Rd, St. Louis, Mo 63114	314-428-1134	314-428-3472	
Tom Kearns, Com-Net/ Ericsson	8271 Melrose Dr, Lenexa, KS 66214	913-495-2314	913-599-6280	tom.kearns@com- netericsson.com
Tom Ward	531 Sangamon Springfield, IL	217-782-5742	217-524-4396	wardt@worldnet.att.net
Kent Forde, Valle Amb. Dist.	P.O. Box 460 DeSoto, Mo 63020	636-586-2132	636-337-0808	
Lt. William Harlan St. Louis County Police	7900 Forsyth Bl St. Louis, Mo 63105	314-615-5361	314-615-4658	
Chuck Gastler St. Louis City	(late arrival)			

Introduction: Devine: Explained National Coordination Committee structure.

Showed Power Point presentation: Committees formed within the structure are - 1) Technical, 2) Interoperability, 3) Implementation. Explained there are 12 MHz of spectrum that are paired consisting of TV channels 63 (base) paired with 68 (mobile) and 64 (base) paired with 69 (mobile). These frequencies are available to any entity that is responsible for protection of life, health or property and non-governmental organizations are eligible for use of this spectrum with a letter of support by the political jurisdiction served. There are two 2 MHz guardbands and two 1 MHz guardbands that are managed by a guardband manager who leases frequencies within this spectrum and ensures compliance. Guardbands were auctioned by regional market and Nextel was successful bidder in most areas of the nation. According to the Commission, no cellular architecture is allowed within the guardband. There is speculation that Nextel will barter arrangements with 800 MHz licensees on a *quid pro quo* basis.

Public safety structure:

General Use - 616 channels assigned in 6.25 kHz bandwidth. These may be aggregated to 25 kHz bandwidth. 48 channels of 50 kHz bandwidth.

Interoperability - 0.8 MHz of narrowband (32 channels at 12.5 kHz), 0.8 MHz I/O guard (64 channels at 6.25 kHz) and 1.8 MHz of wideband (18 channels @ 50 kHz).

Other - 2.4 MHz digital assigned to state government (192 channels @ 6.25 kHz), 0.3 MHz of low power analog for "on scene" communications (24 channels @ 6.25 kHz) and wideband reserve (54 channels @ 50 kHz).

NCC Recommendations: Second report due on February, 01 anticipates Project 25 common air interface, phase 1 (11K3F2E) to be digital standard for interoperability. Also anticipated will be these frequencies will be allowed to trunk, but must be disabled during an incident and made available for interoperability.

NCC goals are to have 10 regional plans completed by 2001 and to exert pressure on FCC and broadcast incumbents to vacate this spectrum. Thusfar, Kansas City must protect KSMO, Channel 62, a 2.2 MW broadcaster, for a 90 mile radius from Kansas City. Channel 63 cannot be assigned closer than 90 SM because of adjacent channel protection. LPTV stations will become secondary to public safety operations. The 64/ 69 pairs will be used in the Kansas City area.

The states must license their blocks before 12-31-01 or they will revert to regional assignment. Ward: The governor of each state must submit a letter indicating the state will use the spectrum. Devine: Time frame for implementation and population affected must also be noted.

Devine: Ron Shook was the convener of the initial 700 MHz meeting in September. 700 MHz coordination is possible by all frequency coordinators. The 700 MHz committee must publish with 60 days notice in public safety publications and public safety websites. Meetings must be held in different parts of the region. This committee will disseminate information by an e-mail list server. It must also notify adjacent regions, particularly Regions 13 and 54 of a pre-plan proposal.

The National Institute of Justice bid out for database services to update frequencies.

Brief discussion of endorsing non-standard splits to accommodate for KSMO. Also considering short-spacing from 113 km to 80 km. Stations must conform to 40 dBμ contours as defined in 47CFR90.309.

Interoperability channels will be broken down as follows:

2 Calling pairs, 30 TAC pairs (Fire - 4, EMS - 4, LE - 4, General services - 12, Mobile repeaters - 2, Public safety - 2, Data - 2). Commentary: some feel there are too many channels devoted for interoperability. Others feel that more channels will facilitate sectorized assignments, such as those when the incident command structure is invoked. Talkaround on input frequency will be prohibited.

By order of 96-86 docket, regional planning committees must have bylaws, must elect officers, must organize standing committees. If a region does not make a plan, a default plan will be written for them. All coordinations are first come, first served. There should be a five year buildout. If not, channels will revert to general use (commercial) pool, the same as 800. Frequencies assigned on the basis of percentage of population, number of frequencies per capita, minimum number of channels per entity and major needs.

There is expectation of a giveback frequency in other bands, but because many entities are co-channel to short-spaced allocations, these frequencies are of limited value. Many organizations must still retain VHF or UHF frequencies for alerting of volunteers or other purposes that cannot be accommodated by 700 MHz, such as SCADA telemetry.

Announcement: Dean Hart has departed Kansas City and has accepted a position with Com-Net Ericsson building the Florida statewide trunked system.

Next meeting tentatively set for Springfield.

Motion to Adjourn: Clinard, Second: Redman.

# MISSOURI STATE HIGHWAY PATROL

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Public Information & Education Division - P.O. Box 568 - Jefferson City, MO 65102

### NEWS RELEASE

For further information please contact: Mr. Stephen Devine  
Q11002 (573) 526-6105

November 7, 2000

**EMPHASIS:** Patrol Promotes NPSPAC Planning Committees

The Missouri State Highway Patrol would like to invite public safety agencies throughout Missouri to attend a meeting of the Region 24 National Public Safety Planning Advisory Committee (NPSPAC). This meeting will take place from 10 a.m. to 11:30 a.m. on January 11, 2001 at the St. Louis County Emergency Operations Center, 14847 Olive Street Road in Chesterfield, MO. The NPSPAC Committee is an ad-hoc committee open to all public safety/public service entities interested in the 821-824Mhz Plan. Region 24 encompasses the entire state and was created in July 1993 with the intent of improving public safety communications by using dedicated 800Mhz spectrum.

Topics for this meeting include updates on applications pending before the committee and a review of regulatory issues concerning future NPSPAC frequency allocation. Lunch will not be provided, but a break in the meeting will allow time for lunch at a nearby establishment.

After lunch, all interested parties are invited to participate in the Region 24 700Mhz Committee from 12 p.m. to 3 p.m. This committee was formed in June 2000 to provide a mechanism for public safety agencies in Missouri to follow implementation of newly acquired 700Mhz spectrum, and comment on the guidelines for this spectrum being established by the National Coordinating Committee (NCC). As the NCC will be forwarding many of their conclusions on 700MHz standards and allocations to the Federal Communications Commission in February 2001, the Region 24 meeting in January should provide attendees with up-to-date information.

Both meetings will be chaired by the Region 24 NPSPAC 800Mhz and 700Mhz Chairperson Stephen T. Devine, frequency coordinator with the Communications Division of the Missouri State Highway Patrol.

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DA 01-343  
February 13, 2001

## **WIRELESS TELECOM ACTION**

### **REGION 24 (MISSOURI) PUBLIC SAFETY PLANNING COMMITTEES ANNOUNCE PLANNING MEETINGS**

By this notice, the Region 24 (Missouri) 800 MHz Public Safety Planning Committee and the Region 24 (Missouri) 700 MHz Public Safety Planning Committee announce that consecutive meetings will be held on Thursday, March 29, 2001. Region 24 encompasses the entire state of Missouri. The meetings will be held at the Greene County Emergency Management Office at 833 N. Boonville Road, Springfield, Missouri.

The Region 24 800 MHz Public Safety Planning Committee meeting will convene at 9:00 a.m., C.S.T. The purpose of this meeting is to update applications pending before the committee and to review regulatory issues concerning future 800 MHz NPSPAC applications. The Region 24 800 MHz Public Safety Plan was originally adopted on July 12, 1993 in PR Docket 93-131.

The Region 24 700 MHz Public Safety Planning Committee meeting will convene at 1:00 p.m., C.S.T. The purpose of this meeting is to review established guidelines for 700 MHz spectrum being established by the National Coordination Committee.

Both the 700 MHz and the 800 MHz planning meetings are open to all public safety entities as well as any party interested in public safety/public service communications. For further information, please contact:

Mr. Stephen Devine  
Chairman, Region 24, 800 MHz Public Safety Planning Committee  
Convener, Region 24, 700 MHz Public Safety Planning Committee  
1510 East Elm  
Jefferson City, Missouri 65101  
(573) 526-6105 (voice)

(573) 526-1112 (fax)  
email: [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)

- FCC -

NPSAC Region 24 700 MHz Regional Planning Committee Meeting  
Thursday, March 29, 2001  
Greene County E.O.C., Springfield, Mo

Meeting opened by Chairman Steve Devine at 1238 hrs.

In attendance:

Ron Shook, Greene Co. EMA  
J.R. Webb, Greene Co. Sheriff's Dep't.  
Steve Devine, Missouri State Highway Patrol  
Pete Albera, Motorola C&E, Inc.  
Bill Cade, Jasper County E9-1-1  
Sharon Murray, Republic Police Department  
Steve Sloan, Missouri State Emergency Management Agency  
Steve Makky, Sr., St. Charles County Emergency Management  
Mike Turner, Central County E9-1-1 (St. Louis Co.)

Devine: The National Coordinating Committee (NCC) met in Florida recently. The pre-coordination database proposed has not been approved by the FCC.

Discussion of interoperability issues: There will be 32 interoperability channels. 8 of these will be mandatory and found in every radio capable of operating on 700 MHz. Of these 8, 2 will be calling and 6 TAC channels will be divided by individual disciplines. The Commission's 4th Report & Order and 5th Notice of Proposed Rule Making released on January 17th. [<http://www.fcc.gov/wtb/publicsafety/2001docs.html>] defines interoperability standards. Stations licensed prior to January 1, 2005 may continue to use 12.5 kHz wide channels in their systems and will not be required to make those channels 6.25 kHz until January 1st., 2017. After 2005, there may be a mandate to narrowband, possibly requiring new equipment to meet an imposed deadline. The 5th. NPRM seeks comment on the proper approach for achieving a 6.25 kHz standard for General Use channels.

Subcommittee formation: The following committees were formed -

Interoperability - Participates in establishing and following NCC and State specific guidelines. Coordinates these guidelines at the state level. Brief discussion of responsibilities. Bill Cade volunteers for the position of chairman.

Bill Cade elected to position of Chair by acclaim.

Implementation - Follows trends and participates in development of plan. Makes recommendations to RPC regarding training and distribution of the plan. Participates in public affairs by attending communications oriented gatherings within the state and explaining/ promoting 700 MHz applications. Brief discussion of responsibilities. Steve Devine volunteers for the position of chairman.

Steve Devine elected to position of Chair by acclaim.

Technology - Addresses issues of standards and technology in plan and during buildout of systems. Investigates compatibility of cross-mode contention and reusability and makes recommendations to the Region 24 Planning Committee. Brief discussion of responsibilities. Steve Makky, Sr. volunteers for the position of chairman.

Steve Makky, Sr. elected to position of Chair by acclaim.

Membership and participation in these committees is open and interested parties are invited to participate actively in the establishment and continuance of committee activities.

Discussion of web page for Region 24 activities. Selected a name similar to "NPSPACRegion24.org" or "NPSPACRegion24\_700MHz.org." Authorization granted to secure a suitable internet domain name and space on a hosting service. Awaiting report from Chairman Steve Devine regarding the particulars of names acceptable for funding from NPSTC. Interoperability subcommittee Chair Cade endorses idea for website. Passed by unanimous vote.

Motion to adjourn Cade, Second Makky. Unanimous vote.

Meeting adjourned at 1322 hrs.

Respectfully submitted,

Steven J. Makky, Sr.  
Secretary,  
NPSPAC Region 24 700 MHz Regional Planning Committee

# MISSOURI STATE HIGHWAY PATROL

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## DEPARTMENT OF PUBLIC SAFETY

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Public Information & Education Division - P.O. Box 568 - Jefferson City, MO 65102

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### NEWS RELEASE

For further information please contact: Mr. Stephen Devine  
Q5013 (573) 526-6105

May 17, 2001

**EMPHASIS:** Patrol Promotes NPSPAC Planning Committees

The Missouri State Highway Patrol would like to invite public safety agencies throughout Missouri to attend two meetings of the Region 24 National Public Safety Planning Advisory Committee (NPSPAC). The 800 MHz meeting will take place from 9 a.m. to 12:00 p.m. on June 28, 2001, at the Missouri State Highway Patrol General Headquarters second floor conference room, 1510 East Elm Street, Jefferson City, MO 65101. This NPSPAC Committee, along with the 700 MHz NPSPAC Committee, are ad-hoc committees open to all public safety/public service entities interested in public safety communications. Region 24 encompasses the entire state of Missouri and was created in July 1993 with the intent of improving public safety communications by using recently dedicated 800Mhz spectrum.

Topics for this meeting include updates on applications pending before the committee and a review of regulatory issues concerning future NPSPAC frequency allocation. Lunch will not be provided, but a break in the meeting will allow time for lunch at the Patrol's Law Enforcement Academy located at General Headquarters.

After lunch, all interested parties are invited to participate in the Region 24 700MHz Committee from 1 p.m. to 3 p.m. This committee was formed in June 2000 to provide a mechanism for public safety agencies in Missouri to follow implementation of newly acquired 700MHz spectrum, provide a forum to comment on the guidelines for this spectrum being established by the National Coordinating Committee (NCC) and to begin to prepare for the process of writing a plan for Region 24 implementing 700 MHz. A meeting of the NCC in St Louis, MO, in early May 2001 provided insight as to the progress of developing the guidelines required for 700 MHz implementations. There are sure to be discussions involving the content of a future plan for Region 24.

Both meetings will be chaired by the Region 24 NPSPAC 800Mhz and 700Mhz Chairperson Stephen T. Devine, frequency coordinator with the Communications Division of the Missouri State Highway Patrol. Any inquiries can be forwarded to him at 573 526 6105 or sdevine@mail.state.mo.us

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**From:** sdevine@mail.state.mo.us

**Date:** Wed Apr 4, 2001 9:05 am

**Subject:** Announcement of Region 24 NPSPAC 800 MHz and 700 MHz meetings

Region 24 members

The NPSPAC Region 24 800 MHz and 700MHz committees will hold two separate meetings on Thursday, June 28, 2001. The meetings will be located at the Missouri State Highway Patrol General Headquarters 2nd floor conference room , 1510 East Elm in Jefferson City, Missouri 65101. The 800 MHz NPSPAC meeting will begin at 9 am hrs ending with a lunch break. The 700 MHz meeting will begin at 1 pm will anticipated adjournment at 3 PM.

Both meetings will update all interested parties on progress within Region 24 public safety using both bands. Regulatory updates will also be presented.

The Region 24 NPSPAC Committees encourage any party interested in Public Safety Communications to attend these meetings. Both meetings are open to the public and for further information, contact the Region 24 Chairperson, Stephen T. Devine 573 526 6105.

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DA 01-1043  
April 23, 2001

## **WIRELESS TELECOM ACTION**

### **REGION 24 (MISSOURI) PUBLIC SAFETY PLANNING COMMITTEES ANNOUNCE PLANNING MEETINGS**

The Region 24 (Missouri) 800 MHz Public Safety Planning Committee and the Region 24 (Missouri) 700 MHz Public Safety Planning Committee announce that consecutive meetings will be held on Thursday, June 28, 2001. Region 24 encompasses the entire state of Missouri. The meetings will be held at the Missouri State Highway Patrol General Headquarters (2<sup>nd</sup> Floor Conference Room) at 1510 East Elm, Jefferson City, Missouri 65101.

The Region 24 800 MHz Public Safety Planning Committee meeting will convene at 9:00 a.m. The purpose of this meeting is to review pending 800 MHz applications before the committee, to create an advisory committee that will begin to consider what changes a future rewrite of the plan will bring, and other issues before the committee. The Region 24 800 MHz Public Safety Plan was originally adopted on July 12, 1993 in PR Docket 93-131.

The Region 24 700 MHz Public Safety Planning Committee meeting will convene at 1:00 p.m., after a short lunch break. The purpose of this meeting is to review regulatory issues being considered by the National Coordination Committee in the development of the 700 MHz public safety guidelines.

Both the 700 MHz and the 800 MHz planning meetings are open to the public and all parties interested in public safety communications are welcome. For further information, please contact:

Mr. Stephen Devine  
Chairman, Region 24, 800 MHz Public Safety Planning Committee  
Convener, Region 24, 700 MHz Public Safety Planning Committee  
1510 East Elm  
Jefferson City, Missouri 65101  
(573) 526-6105 (voice)  
(573) 526-1112 (fax)  
email: [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)

- FCC -

Agenda 700 MHz meeting June 28, 2001 1 PM

Greeting/Welcome/Introductions

Establish temporary secretary to take minutes in Steve Makky's absence

Standing Region 24 RPC 700 MHz subcommittee members:

Interoperability      Bill Cade, Jasper County 911, Chairperson  
                                 Ron Shook, Greene County Emergency Management

Implementation      Steve Devine, MSHP, Chairperson

Technology            Steve Makky Sr. Charles County Communications, Chairperson  
                                 Chuck Gastler, St Louis City Police Dept  
                                 Tom Kearns, MA/COM Private Radio Systems

Review Fred Griffin presentation from the APCO East Coast Regional

Discuss the NCC Document-Implementation Subcommittee report

Executive summary of report reviewed by committee

#### **Recommendations**

**Use of NLECTC database**

**Proposals to expedite FCC approval of initial 700 MHz Regional Plans and modifications**

**700 MHz National Planning Oversight Committee**

**Pre Planning Process Proposal**

**The handling of Uniformed Regions**

**Periodic Re-evaluation of allotments with regions**

**Support of Interoperability Subcommittee recommendations**

**Interference issues**

**Coordination and Licensing**

**Funding**

Discuss most recent NCC documents...

Harlin McEwen's recommendation from NCC Steering Committee to FCC supporting The NPSTC Petition for Reconsideration the to FCC

Review of the NPSPTC Petition for Reconsideration ref interference issues

**Statement from Kathy Wallman (Chair of NCC) advising the FCC that the NCC has reached consensus on one of the technical standards regarding equipment having circuit data capabilities.**



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DA 01-1608  
July 6, 2001

## **WIRELESS TELECOM ACTION**

### **REGION 24 (MISSOURI) PUBLIC SAFETY PLANNING COMMITTEE ANNOUNCE PLANNING MEETING**

The Region 24 (Missouri) 700 MHz Public Safety Planning Committee announces that its sixth meeting will be held on Tuesday, September 18, 2001 at 5 p.m. Region 24 encompasses the entire state of Missouri. The meeting will be held at the Chateau on the Lake resort located in Branson, Missouri. The purpose of this meeting is to:

- establish a methodology for allocation of general use channels within Region 24 (voice only),
- set a date and a timeline for a filing window to accept applications for those general use voice channels, and
- determine the date the writing group will have the plan Region 24 700 MHz plan completed.

The Region 24 700 MHz Public Safety Planning Committee meeting is open to the public. All eligible public safety providers in Missouri may utilize these frequencies. It is essential that participants be representatives of all eligible public safety providers in order to ensure that your agencies' future spectrum needs are considered in the allocation process. Administrators who are not oriented in the communications field should delegate someone with this knowledge to attend, participate and represent your agency's needs.

All interested parties wishing to participate in the planning for the use of new public safety spectrum in the 700 MHz band within Region 24 should plan to attend. For further information, please contact:

Mr. Stephen Devine  
Chairperson, Region 24, 700 MHz Public Safety Planning Committee  
1510 East Elm  
Jefferson City, Missouri 65101  
(573) 526-6105 (voice)  
(573) 526-1112 (fax)  
email: [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)

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THE NATIONAL PUBLIC SAFETY PLANNING ADVISORY COMMITTEE (NPSPAC) 700 MHZ COMMITTEE FOR REGION 24 WILL HOLD A MEETING ON SEPTEMBER 18 AT 5 PM AT THE CHATEAU ON THE LAKE RESORT IN BRANSON, MISSOURI. THE CHATEAU ON THE LAKE IS LOCATED AT 415 NORTH STATE HIGHWAY 265 IN BRANSON, MISSOURI 65616 PHONE 888 729 7705. THE NPSPAC COMMITTEE IS OPEN TO THE ENTIRE PUBLIC SAFETY/PUBLIC SERVICE COMMUNITY INTERESTED IN THE RECENTLY ALLOCATED 700 MHZ PUBLIC SAFETY SPECTRUM. MEMBERSHIP IN THE REGIONAL PLANNING COMMITTEE IS OPEN AND THE COMMITTEE'S MISSION IS TO DEVELOP OPERATING PARAMETERS FOR THE USE OF THIS NEW SPECTRUM THROUGHOUT MISSOURI. THE REGION 24 (STATE OF MISSOURI) 700 MHZ NPSPAC PLAN WILL REPRESENT AND REFLECT THE COMMUNICATIONS NEEDS OF PUBLIC ENTITIES THROUGHOUT MISSOURI.

ANY QUESTIONS REGARDING THIS MEETING OR THE NPSPAC IN GENERAL CAN BE DIRECTED TO THE REGION 24 CHAIRPERSON, STEPHEN DEVINE AT 573 526 6105.

MISSOURI STATE HIGHWAY PATROL COMMUNICATIONS

National Public Safety Plan Advisory Committee (NPSPAC) Region 24 700 MHz Regional Planning Committee

September 18, 2001 meeting, held at the Chateau on the Lake, Branson, Mo.

Meeting called to order at 1710 hrs.

Those in attendance:

Steve Devine - MSHP - RPC Chair/ Chair Implementation Subcommittee  
Steve Makky, Sr. - SCCG/ EMA - RPC Secretary/ Chair Technology Subcommittee  
Mike Turner - Central [St. Louis] County E9-1-1  
Terry Buhr - Motorola  
Charles Gastler - St. Louis Metropolitan Police Department  
Tom Kearns - M/A Com Wireless  
J.R. Webb - Greene Co. Sheriff's Office  
Roger Strobe - Missouri State Highway Patrol  
Peter Albera - Motorola  
Ed Brundage - Kansas City, Mo. Police Department  
Chuck Zang - Kansas City, Mo. Fire Department  
David Cerqua - M/A Com Wireless

Old business:

Devine:

Due to events of terror in New York City in the past week, the National Coordinating Committee (NCC) meetings scheduled to take place last week were cancelled.

Devine conducts audio-visual review of NCC progress thus far:

Database program and terrain packing is done and is in beta testing. Training should commence in October. Data channels remain to be done. There is no current model available to determine optimal methods to pack these frequencies as they do not follow existing paradigms. The Telecommunications Industries Association (TIA) is assisting the NCC in preparing these channels for apportionment.

Whilst Americans are in the process of vacating broadcasters from the 700 MHz band, Canadians are in the process of migrating broadcasters there, creating a variety of "Line A" issues to be considered for implementation. The State of New York has hired a Syracuse based consulting firm to consider the impact of this practice and attempt to intervene.

Thankfully, the model used to divvy up 800 MHz NPSPAC allocations has not been used in 700 MHz. New York based contractor NYS-TEC has approached the NCC to create border allocations nationally. It has been observed that in the New York State model, the same frequency was reused seven times in a three county area given the methodology proposed. The method establishes an average terrain within a county and then determines predicted coverage based on 40 dBμ contour. For co-channel use, the 40 dBμ contour can touch, but not overlap the 5 dBμ contour of the co-channel station. County boundaries are used for coverage determination and terrain is used for interference contours. This combination allows for a more realistic prediction of interference. It also allows for looser terrain-based packing. The new methodology is estimated to have a channel gain of five times that of the method employed for 800 MHz packing.

The NYS-TEC proposal indicates that there is a disproportionate amount of public safety radio users within rural areas. Other New York State specific material was shown.

The NCC database was discussed. This database will populate the FCC Form 601! The NCC will issue blocks of 25 kHz channel blocks, but the RPC can further fraction these to 12.5 kHz as a matter of local option. It is most likely that each county will, at a minimum, receive three voice and one data channel.

The 2020 Census predictions indicated a 15% population efflux to the northern third of the region, however 2010 census predictions are used to calculate additional channels. Other criteria considered was a frequency spacing to obtain realistic combiner performance with a minimum of loss; a 3 mile rural and 5 mile urban 40 dBμ buffer zone and table-based interference criteria.

Discussion of broadcaster in Kansas City: While the entire spectrum may not be usable in the Kansas City area, it will be possible to use more than thought. The RPC will have to protect the video carrier, but will be allowed to allocate additional frequencies within the area.

The question of whether the presence of broadcasters in the New York and California regions would cause manufacturers to drag their feet to roll out a product that can take advantage of this spectrum while other areas, perceived to be less lucrative, would be ready to go was raised. The concern expressed is that areas in Missouri would be interested in immediate implementation and are not restricted by broadcasters within the band. Major equipment manufacturers state they would begin production of equipment two years after an announcement by the Federal Communications Commission (FCC) stating the spectrum was available for licensure. It is thought that these manufacturers would be faster to respond if they perceived a more lucrative market and are, instead, taking a wait-see posture regarding vacating broadcasters in major areas. Representatives present from Motorola and M/A Com state that they do not believe this to be the case and they would gladly sell equipment to people from Missouri.

Discussion of bylaws for the 700 MHz RPC:

Devine: The NCC criteria suggest a member need be present at one of four meetings per calendar year to be considered in good standing. Discussion followed regarding individuals who may become inactive, yet have the ability to impede the proceedings of the RPC. Two of the meetings would be held in Jefferson City, Mo., which is a central point within the state. Most committed members should not have difficulty working one of these sessions into their schedule if a local meeting were not possible. A goal date of January 1, 2002 was set to create a draft of these bylaws, which would then be given to the membership for perusal.

The issue of establishing a quorum was discussed. Turner stated there could be several means of determining a quorum, such as a minimum number of executive members or the presence of a minimum number of committee chairs. Devine is concerned about the lack of attendance RPC meetings have had despite publication in a wide variety of sources. Turner suggested several formulae. Such shall be incorporated into the draft bylaw document for commentary.

The NCC's "Draft Report on Capitol Funding Mechanisms for Public Safety Communications" document was circulated. Other material was made available in the refreshment bar in the rear of the room. These included PSWN CD-ROMs and leaflets.

Once approved, the bylaws will be uploaded on the NCC database for all to see.

Devine stated the region is ahead of others and is actively working with the NCC. The NCC structure considers a "vice chair" who is given responsibilities within the region. Makky was named as the vice chair by Devine.

A question was brought by Devine before the Technology Subcommittee: Would the Technology Subcommittee review and approve general use frequencies for coordination? While there is no objection seen in the methodology used, these were not immediately available at this meeting. Makky requests a vote to table this issue until the next meeting to allow time to sufficiently examine these. Moved by Devine. Seconded by Turner.

Further discussion regarding border issues ensues. The defined border region is 70 miles. Devine believes 50 miles is adequate for border areas. The RPC should have control over as large an area as practicable. Albera questions how interregional entities would operate. Such is the case of the Bi-State Development Agency, which operates between Missouri and Illinois. Devine states this issue must be worked out between each affected region in the spirit of cooperation.

Channel labeling is discussed. The NCC wishes to use the same nomenclature for wideband data channels as narrowband, except that a "W" is used to indicate a 150 kHz channel. The FCC may not be supportive of this. The loading of a 150 kHz wide channel may be larger than that of a narrowband channel or of the 800 MHz channels. This remains to be seen.

**Implementation Subcommittee:**

Most things in the bylaws are generic. There are some NCC documents that could be included as appendices, but are not completely necessary within the bylaw itself. Reference can be made to NCC documents. The most important function is that a person who has never read the document would know where to find the reference info.

**Interoperability Subcommittee:**

Bill Cade is absent.

**Technology Subcommittee:**

There has been a modification to the NPRM where 6.25 kHz of guardband should come before and after a interoperability channels. It is possible to develop interoperability data systems that aggregate to 150 kHz. A brief discussion of the concept of interoperability data systems was conducted. Most applications have yet to be developed, but Makky believes that interoperability channel data systems could be used to link separate discipline command posts together into a wireless local area network (LAN) during a multiple casualty incident (MCI) to achieve a unified command environment and share data between disciplines.

Final Bandplan discussion - Migration, if systems developed before 2005, there will be no need to migrate to 6.25 kHz until 2017, otherwise the migration to 6.25 kHz wide channels must occur earlier.

Question brought forth by Devine regarding the opening of a filing window. Prior to opening the window, the plan must be met. Discussion regarding developing a list of applications follows. Participants present agree that manufacturers must accelerate production process to facilitate implementation. Albera questions how to get the word of 700 MHz advanced communications systems out. Turner states approaching statewide law enforcement and fire department organizations in very simple terms. Such presentation should not exceed 10 - 15 minutes. Albera stresses public education by the RPC.

Motion by Devine: Issues tabled until January:

Methodology

Filing Date

Committee Reports

Second: Gastler

Discussion of Bylaws to be presented by January meeting. Item of interest in by-laws relates to giveback of existing spectrum allocation in other frequency bands once an entity receives coordination in 700 MHz. Iterations would be addressed within the bylaws draft.

Meeting adjourned at 1840 Hrs.

Respectfully submitted,

Steven J. Makky, Sr.,

Secretary, NPSPAC Region 24

Regional Planning Committee



# MISSOURI STATE HIGHWAY PATROL

## A Division Of The Department of Public Safety

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Public Information and Education Division - PO Box 568 - Jefferson City, MO 65102

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### NEWS RELEASE

**For further information please contact:** Captain C. T. Ricks  
Q8013 (573) 526-6115

August 2, 2001

#### **EMPHASIS: Patrol Announces NPSPC Meeting**

On Tuesday, September 18 2001, a meeting of the Region 24 700 MHz National Public Safety Planning Advisory Committee (NPSPAC) will be held from 5pm-8pm at the Chateau on the Lake Resort in Branson, Missouri. The Chateau on the Lake is located at 415 North State Highway 265, Branson, Missouri 65616; and can be reached by phone at (888) 729-7705. The annual conference of the Missouri Chapter of the Association of Public Safety Communications Officials (APCO) will be taking place at the hotel during business hours, however the Region 24 meeting is not affiliated with the conference. The NPSPAC Committee is open to all public safety/public service entities interested in the recently allocated 700 MHz public safety spectrum. The Region 24 700 MHz Committee includes members of all public safety/public service entities in Missouri and was originally created in June 2000 with the intent of improving public safety communications by using FCC dedicated 700 MHz spectrum.

Topics for this meeting include, but are not limited to:

- \* The establishment of a methodology for allocation of general use channels within Region 24 (voice channels only).
- \* An informative discussion relating to the wideband data channels and progress made on establishing loading criteria for these channels.
- \* The establishment of a date and a timeline for a filing window to accept applications from qualified applicants for general use voice channels.
- \* The determination of when the Writing group within Region 24 will have the plan completed.

This regional committee was empowered by the FCC to provide a mechanism for public safety agencies in Missouri to follow implementation of recently allocated 700 MHz spectrum, and comment on the guidelines for this spectrum being established by the National Coordinating Committee. The Region 24 plan will reflect and represent the needs of public safety communications within the State of Missouri.

The meeting will be chaired by the NPSPAC 700MHz Chairperson Stephen T. Devine, frequency coordinator with the Communications Division of the Missouri State Highway Patrol.

If there are any questions regarding this meeting, Mr. Devine can be contacted at (573) 526-6105.

(###)

# **Region 24 700 MHz Committee Meeting September 18, 2001**

**Chateau on the Lake Resort, Branson Missouri**

## **Agenda**

- I Opening of meeting, welcome**
- II Overview of public safety 700 MHz  
Region 24 plans**
- III Minutes from previous meeting  
Acceptance**
- IV Subcommittee reports  
Technical  
Implementation  
Presentation of NYSTEC pool allotment method  
Interoperability**
- V Bylaws updates**
  - 1. Region 24 establishing a methodology for allocation of General Use spectrum (voice only).**
  - 2. Setting a date for completed plan and a timeline for opening a filing window to accept applications for general use voice channels.**
  - 3. Setting of date for completion of subcommittee reports for inclusion in the regional plan.**
- VI New Business**
- VII adjournment**

**Subject: announcement of the Sixth Region 24 700 MHz NPSPAC meeting**

**Date:** Tue, 03 Jul 2001 07:42:17 -0400

**From:** Stephen Devine <sdevine@mail.state.mo.us>

**Organization:** Missouri State Highway Patrol

**To:** edwardst@apco911.org, ktaylor@intertec.com, edit@radioresourcemag.com,  
jalford@fcc.gov, sdevine@mail.state.mo.us

When possible, could you please publish this announcement on the Sixth Region 24 700 MHz meeting as listed below? If there are any questions, feel free to call the Region 24 Chairperson, Stephen T. Devine at 573 526 6105 or sdevine@mail.state.mo.us....

The Region 24 National Public Safety Planning Advisory Committee will hold its sixth meeting on September 18, at 5 pm at the Chateau on the Lake resort located in Branson, Missouri. The 700 MHz committee meeting is open to the public and the committee urges all parties interested in public safety communications to attend. Feel free to contact Stephen Devine, Region 24 Chairperson at 573 526 6105 or sdevine@mail.state.mo.us if there are any questions.

The announcement is short and to the point. If more information is needed, feel free to contact me.

Stephen Devine

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Stephen T. Devine <sdevine@mail.state.mo.us>

Patrol Frequency Coordinator  
Missouri State Highway Patrol  
Communications Division

July 31, 2001

On Tuesday, September 18 2001, a meeting of the Region 24 700 MHz National Public Safety Planning Advisory Committee (NPSPAC) will be held from 5pm-8pm at the Chateau on the Lake Resort in Branson, Missouri. The Chateau on the Lake is located at 415 North State Hwy 265, Branson, Missouri 65616 phone 888 729 7705. The annual conference of the Missouri Chapter of the Association of Public Safety Communications Officials (APCO) will be taking place at the hotel during business hours, however the Region 24 meeting is not affiliated with the conference. The NPSPAC Committee is open to all public safety/public service entities interested in the recently allocated 700 MHz public safety spectrum. The Region 24 700 MHz Committee includes members of all public safety/public service entities in the State of Missouri and was originally created in June 2000 with the intent of improving public safety communications by using FCC dedicated 700 MHz spectrum.

Topics for this meeting include, but are not limited to:

The establishment of a methodology for allocation of general use channels within Region 24 (voice channels only).

An informative discussion relating to the wideband data channels and progress made on establishing loading criteria for these channels.

The establishment of a date and a timeline for a filing window to accept applications from qualified applicants for general use voice channels.

The determination of when the Writing group within Region 24 will have the plan completed.

This regional committee was empowered by the FCC to provide a mechanism for public safety agencies in Missouri to follow implementation of recently allocated 700 MHz spectrum, and comment on the guidelines for this spectrum being established by the National Coordinating Committee. The Region 24 plan will reflect and represent the needs of public safety communications within the State of Missouri.

The meeting will be chaired by the NPSPAC 700MHz Chairperson Stephen T. Devine, Frequency Coordinator with the Communications Division of the Missouri State Highway Patrol.

If there are any questions regarding this meeting, Mr. Devine can be contacted at 573-526-6105.



cobbc@mshp.state.m  
o.us

To:  
cc:  
Subject: news release

10/19/01 10:53

MISSOURI STATE HIGHWAY PATROL

A Division Of The  
Department of Public Safety

Public Information and Education Division -- PO Box 568 -- Jefferson  
City, MO 65102

NEWS RELEASE

For further information please contact: Mr. Stephen T. Devine  
Q10014 (573) 526-6105

October 17, 2001

EMPHASIS: Patrol Announces NPSPAC Meeting

On Thursday, January 10, 2002, a meeting of the Region 24 National Public Safety Planning Advisory Committee (NPSPAC) committees for 700 MHz and 800 MHz is scheduled to take place. The meetings will be held in the second floor conference room at the Missouri State Highway Patrol General Headquarters.

The 800 MHz meeting begins at 9 a.m. Updates on progress regarding the availability of 800 MHz allotments within Region 24 in the St. Louis metropolitan area will be discussed. The meeting will update members of the RPC on the results of an ongoing dialog regarding Region 13 pool allotments and how they affect densely populated areas in Region 24, such as St. Louis, St. Charles, Jefferson, and Franklin counties, and the city of St. Louis. A discussion on the submission of a new Region 24 800 MHz plan to the FCC, which would reflect changes in pool allotments from the current Region 24 plan, is anticipated. A discussion is planned on availability of narrowband spectrum throughout Missouri and whether or not Region 24's new plan should reflect pool allotments using both wideband (16K) and narrowband (11K) emissions.

The Region 24 700 MHz meeting will begin at 1 p.m. The following items are on the agenda:

- Acceptance of bylaws for Region 24 700 MHz plan;
- Final decisions on content of regional plan;
- Development of criteria needed for applicant eligibility;
- Update on NCC progress and current status of 700 MHz;
- Current availability of 700 MHz;
- Current availability of 700 MHz public safety spectrum in

Missouri; and,

Considering incumbent broadcasters.

Questions on either of these two meetings should be directed to the chairperson of Region 24, Stephen T. Devine, at (573) 526-6105 or sdevine@mail.state.mo.us.

(###)



**devins@mshp.state.  
mo.us**

Sent by:  
owner-apco-700rpc@ap  
co911.org

To: apco-700rpc@apco911.org

cc:

Subject: [apco-700rpc] Region 24 700/800 MHz NPSPAC meeting announcement

10/25/01 14:18  
Please respond to  
devins

Announcement of Region 24 700 MHz-800 MHz NPSPAC meetings, January 10, 2002

The Region 24 NPSPAC Committees for 700 MHz and 800 MHz announce a scheduled meeting on January 10, 2002 at the Missouri State Highway Patrol General Headquarters Second Floor meeting room. The 800 MHz meeting begins at 9:00 am and topics will include:

Updates on progress with regard to availability of available 800 MHz allotments in the St Louis Metropolitan area will be discussed. The meeting will update members of the RPC on the discussions that are ongoing with Region 13 regarding pool allotments in St Louis, St Charles, Jefferson, Franklin Counties and St Louis City.

A discussion on the submission of a new Region 24 800 MHz plan to the FCC that would reflect changes in pool allotments from the current Region 24 plan is anticipated.

A discussion is planned on availability of narrowband spectrum throughout Missouri and whether or not Region 24's new plan should reflect pool allotments using both wideband (16K) and narrowband (11K) emissions.

The Region 24 700 MHz meeting will begin at 1 pm and the following items will be on the agenda:

- Acceptance of bylaws for Region 24 700 MHz plan
- Final decisions on content of regional plan
- Development of criteria needed for applicant eligibility
- Update on NCC progress and current status of 700 MHz
- Current availability of 700 MHz public safety spectrum in Missouri
- Considering incumbent broadcasters.

Questions on either of these meetings should be directed to the Chairperson of Region 24, Stephen T. Devine at 573 526 6105 or [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)

As always, all interested parties are welcome to the Region 24 NPSPAC Committee meetings. Region 24 welcomes all public safety entities and the public to participate in this process.

Stephen T. Devine  
Patrol Frequency Coordinator  
Missouri State Highway Patrol General Headquarters

# Announcement of Region 24 700 MHz-800 MHz NPSPAC meetings, January 10, 2002

The Region 24 NPSPAC Committees for 700 MHz and 800 MHz announce a scheduled meeting on January 10, 2002 at the Missouri State Highway Patrol General Headquarters Second Floor meeting room. The 800 MHz meeting begins at 9:00 am and topics will include:

Updates on progress with regard to availability of available 800 MHz allotments in the St Louis Metropolitan area will be discussed. The meeting will update members of the RPC on the discussions that are ongoing with Region 13 regarding pool allotments in St Louis, St Charles, Jefferson, Franklin Counties and St Louis City.

A discussion on the submission of a new Region 24 800 MHz plan to the FCC that would reflect changes in pool allotments from the current Region 24 plan is anticipated.

A discussion is planned on availability of narrowband spectrum throughout Missouri and whether or not Region 24's new plan should reflect pool allotments using both wideband (16K) and narrowband (11K) emissions.

The Region 24 700 MHz meeting will begin at 1 pm and the following items will be on the agenda:

- Acceptance of bylaws for Region 24 700 MHz plan
- Final decisions on content of regional plan
- Development of criteria needed for applicant eligibility
- Update on NCC progress and current status of 700 MHz
- Current availability of 700 MHz public safety spectrum in Missouri
- Considering incumbent broadcasters.

Questions on either of these meetings should be directed to the Chairperson of Region 24, Stephen T. Devine at 573 526 6105 or [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)



## **Region 24 700 MHz/800 MHz Meeting Agendas, January 10, 2002**

### **➤ 800 MHz**

- **Introductions and regional overview**
- **Review and approval of previous minutes from June 28, 2001**
- **Old business**
- **New topics**
  - **Update on Nextel proposal and what happens if it occurs**
  - **State of Illinois 800 MHz plan and its progress**
  - **Re-evaluation of Region 24's current 800 MHz allotments in light of the Nextel proposal.**
  - **Nextel Vs. Utilities**
  - **New business**

**Discussion**

**Adjournment**

### **➤ 700 MHz**

- **Review and approval of Previous minutes from September 18, 2001 at Branson**
- **Old business**
- **New topics**
  - **Review of Draft Region 24 700 MHz plan**
  - **Update on NCC activity**
  - **Update on equipment availability**
  - **Update on state spectrum\Interoperability spectrum**
  - **Frequency Coordination and what will be required @ 700 MHz**
  - **Pre-coordination database and time frame for opening filing window.**
  - **Frequency allotments and regional latitude on database conclusions**
  - **New Business**

**Discussion**

**Adjournment**

# MISSOURI STATE HIGHWAY PATROL

## A Division Of The Department of Public Safety

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Public Information and Education Division - PO Box 568 - Jefferson City, MO 65102

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### NEWS RELEASE

For further information please contact:  
Q1026

Mr. Stephen T. Devine  
(573) 526-6105

05/01

January 31, 2002

#### **EMPHASIS: NPSPAC Meeting Scheduled**

On April 11, 2002, a meeting of the Region 24 National Public Safety Planning Advisory Committee (NPSPAC) committees for 700 MHz and 800 MHz is scheduled to take place. The meetings will be held at the Kansas City Police Department Communications Division conference room, 5300 Municipal Avenue, Kansas City, MO, 64120. The 800 MHz meeting begins at 10 a.m. The Region 24 700 MHz meeting will begin at 1 p.m.

For an interary or if you have questions concerning either of these meetings, contact the chairperson of Region 24, Stephen T. Devine, at (573) 526-6105 or [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us).

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# PUBLIC NOTICE

News media information 202 / 418-0500  
Fax-On-Demand 202 / 418-2830  
TTY 202 / 418-2555  
Internet: <http://www.fcc.gov>  
<ftp.fcc.gov>

Federal Communications Commission  
445 12th St., S.W.  
Washington, D.C. 20554

**DA 02-278**  
**February 7, 2002**

## **WIRELESS TELECOMMUNICATIONS BUREAU ACTION**

### **REGION 24 (MISSOURI) PUBLIC SAFETY PLANNING COMMITTEES ANNOUNCE REGION 24 800 MHz REGIONAL PUBLIC SAFETY PLANNING MEETING (PR DOCKET 93-131) AND REGION 24 700 MHz REGIONAL PUBLIC SAFETY PLANNING MEETING**

The Region 24 (Missouri) 800 MHz National Public Safety Planning Advisory Committee and the Region 24 (Missouri) 700 MHz Regional Planning Committee announce that consecutive meetings will be held on Thursday, April 11, 2002 at the Kansas City Police Department Communications Division Conference Room, 5300 Municipal Avenue, Kansas City, Missouri.

The meeting of the Region 24 (Missouri) 800 MHz National Public Safety Planning Advisory Committee will convene at 10:00 a.m. The agenda for this meeting includes:

- Discussion on the Nextel proposal to re-band 800 MHz Public Safety spectrum,
- An update on the 800 MHz NPSPAC interoperability network currently used in the Kansas City area and a discussion on lessons learned from achieving interstate (Missouri and Kansas) interoperability,
- A review of current NPSPAC applications before the Committee asking for channels from the 800 MHz established pool allotment, and
- New business.

The meeting of the Region 24 (Missouri) 700 MHz Regional Planning Committee will convene at 1:00 p.m. The agenda for this meeting includes:

- An update on the Region 24 Regional Plan being written and a report from the Implementation Committee on the status of the frequency sort. Discussion should follow regarding the possible submission of the plan to the FCC if recommended by

- the Committee,
- A discussion on the NPSTC Pre-Coordination database and how applications for 700 MHz spectrum will be completed,
- An update on DTV transition and how it will effect Region 24,
- A discussion on commercial 700 MHz spectrum and how implementation of commercial spectrum may effect public safety 700 MHz allotments, and
- New business.

Both of the Region 24 Public Safety Planning Committee meetings are open to the public. All eligible public safety providers in Missouri whose sole or principal purpose is to protect the safety of life, health, or property may utilize these frequencies. It is essential that not only public safety, but all government, Native American Tribal, and non-governmental organizations eligible under Section 90.523 of the Commission's Rules be represented in order to ensure that each agency's future spectrum needs are considered in the allocation process. Administrators who are not oriented in the communications field should delegate someone with this knowledge to attend, participate and represent their agency's needs.

All interested parties wishing to participate in the planning for the use of new public safety spectrum in the 700 MHz band within Region 24 should plan to attend. Region 24 welcomes all interested parties to attend, participate and volunteer for committee assignments. For further information, please contact:

Mr. Stephen Devine  
Chairperson, Region 24, 700 MHz Public Safety Planning Committee and  
800 MHz National Public Safety Planning Advisory Committee  
1510 East Elm Drive  
Jefferson City, Missouri 65101  
(573) 526-6105 (voice)  
(573) 526-1112 (fax)  
email: [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)



**"Joy Alford"**  
**<JALFORD@fcc.gov>**

01/28/02 14:32

To: <devins@mshp.state.mo.us>  
CC:  
Subject: Re: Region 24 700 MHz meeting announcement and agenda

Mr. Devine,  
Thank you for the information concerning the April, 11 2002 Region 24 meetings. We will  
Notice on the Commission's Daily Digest and post the information on the Public Safety w  
Joy Alford/FCC

>>> <devins@mshp.state.mo.us> 01/28/02 02:05PM >>>

Enclosed you will find a meeting announcement for the 700/800 MHz Region 24  
NPSAPC committees. Please distribute this information as you see fit. If  
there are any questions regarding this notice, feel free to call Stephen  
Devine, Region 24 Chairperson at 573 526 6105.

(See attached file: Announcement-Agenda for April 11-2002 NPSPAC mtg.doc)

Stephen T. Devine  
Patrol Frequency Coordinator  
Missouri State Highway Patrol General Headquarters  
1510 East Elm Drive  
Jefferson City, Missouri 65101  
573 526 6105  
573 526 1112 FAX  
sdevine@mail.state.mo.us

**Region 24 (State of Missouri) announces 700  
MHz and 800 MHz Regional Planning  
Committee meetings**

**The Region 24 800 MHz Regional Planning Committee will  
meet in Jefferson City, Missouri at the Missouri State  
Emergency Management Agency at 10AM.on Thursday,  
September 24, 2002**

**Agenda:**

***Welcome***

**Approval of previous meeting minutes**

***Old Business*-Adjacent state issues**

***New Business***

**Regional review of current Region 24 800 MHz channel allotments**

**Discussion on potential modification of Region 24 800 MHz plan**

**New NPSPAC 800 MHz applications**

**Discussion on Region 24 future channel allotments**

***Adjournment***

**The Region 24 700 MHz Regional Planning  
Committee will meet in Jefferson City, Missouri at the  
Missouri State Emergency Management Agency at 1230  
PM on Thursday, September 24, 2002**

## **Agenda**

### ***Welcome***

**Brief overview on 700 MHz FCC allocation and up to date RPC activities  
The Future of the National Coordination Committee (NCC)**

### ***Old Business***

### ***New Business***

**A review of the 700 MHz allotments developed by the CAPRAD database.**

**Comments and suggestions on the Region 24 700 MHz allotments**

**Region 24 700 MHz regional plan approval**

**Wideband data standards**

### **Adjournment**

**The Missouri State Emergency Management Agency is located at 2302 Militia Drive, Jefferson City, MO 65102. Take US-50 East from Jefferson City and Exit at Militia Drive.**

**Region 24 Regional Planning Committee meetings are open to the public and operate in accordance with Missouri's Open Meeting requirements. All are welcome.**

**Any questions regarding these meetings can be directed to the Region 24 Chairperson, Stephen Devine at 573 526 6105 or [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)**

# MISSOURI STATE HIGHWAY PATROL

## A Division Of The Department of Public Safety

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Public Information and Education Division - PO Box 568 - Jefferson City, MO 65102

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### NEWS RELEASE

**For further information please contact:**  
Q07021

Mr. Stephen T. Devine  
(573) 526-6105

**DRAFT**

OK 6/1

Steve seen it.

July 15, 2002

### **EMPHASIS: NPSPAC Meeting Scheduled**

On September 24, 2002, a meeting of the Region 24 National Public Safety Planning Advisory Committee (NPSPAC) committees for 700 MHz and 800 MHz is scheduled to take place. The meetings will be held at the Missouri State Emergency Management Agency, 2302 Militia Drive, Jefferson City, MO.

The Region 24 800 MHz meeting begins at 10 a.m. New business on the agenda includes: review of current channel allotments; discussion on potential modification of Region 24 800 MHz plan; New NPSPAC 800 MHz applications; and discussion on future channel allotments.

The Region 24 700 MHz meeting will begin at 12:30 p.m. New business includes a review of the 700 MHz county allotments developed by the CAPRAD database; comments and suggestions on the Region 24 700 MHz allotments; Region 24 700 MHz plan approval; and wideband data standards.

Region 24 Regional Planning Committee meetings are open to the public and operate in accordance with Missouri's open meeting requirements. For a more detailed agenda, or if you have questions concerning either of these meetings, contact the chairperson of Region 24, Stephen T. Devine, at (573) 526-6105 or [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us).

(###)



National Public Safety Plan Advisory Committee (NPSPAC)  
Region 24 700 MHz Regional Planning Committee

September 24, 2002

Missouri State EOC

Those in attendance:

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Meeting called to order 1057 hrs.

Agenda and past minutes handed out.

Request for approval of the prior minutes

Comments on prior minutes -

Motion to accept 700 MHz minutes by Brundage, seconded by Stump

Devine: Starting with overview of 700 MHz process. It will continue for at least another year. The plan in Missouri is still waiting on the packing program. Devine and Makky went to Denver for the NPSTC database training. Devine is not certain that Missouri will benefit from the packing program as much as some of the other states. New York has mountains and we do not have as many to s=provide shielding for frequency reuse. Devine has taken general use channels and has divided them up with 250 Hz spacing. Passed around. Takes 154 channels with 9 sets of channels to place 10 25 kHz channels 40 channels at 6.25 20 channels @ 12.5. There will be an allocated A layer with a B overlay for metropolitan areas. This may be more aggressive than the NYSTEC packing program. This will be based on contours. Part of the heuristics is taking the highest geographic point and establishing a contour from that, taking into account the safe harbor tables. There may also be averaging of the three highest points for the average height to

establish the contour. PSWAC curves, terrain and census data will be used. Thee plan, bylaws and other mediation issues are pretty much done. The state took their state channels and put them out on the database. For Cole County, you can see state, general use and pool channels. 10 channels (40 voice paths) is pretty aggressive compared to other proposals. Spoke of Buchanan and Southern California and contiguous channels. NYSTEC will put 4 voice and 1 data into every county in the nation and then pack on top of it. Missouri will also continue on the concept explored above and they will both be compared to see which is more advantageous to us. County allotments do not mean that this is exclusive to a county. They can be shared by all eligibles. There were preliminary discussions for the loading criteria for the 50 kHz data channels. If 125 kbps for 3600 kbps/ hr for 8 hrs, anticipated 5 meg for a day, there are 150 users per channel. Interoperability data loading 50 kHz accepted greenhouse SAM standard (scalable adaptive modulation) is for the I/O channel, not for proprietary channels. Nothing more than text messaging has been identified for I/O data at present. Makky states this may be breeding ground for Project 36 CAD I/O with mobile units. Devine: nationwide, there has not been great demand. Speidel: NCC concurs on SAM, but the other issues have not been agreed upon. These have been pursued for a year, but no resolution. Devine: the 19.2 enjoyed at 25 kHz channels is obsolete. In the same 25 kHz, now 76 – 78 kbps. The guestimate is 125 kbps for the loading criteria. Much greater throughput. The NCC will continue. If the consensus plan goes through, it calls for Nextel to give up their 700 MHz guardbands. What will PS do? Talk of GPS/ AVL overlay, but not sure. Base/ mobile use on commercial side brought up. There is anticipated interference, but the Commission refused NPSTC's petition. Commission wants to establish safe zones instead where there is mutual coordination. Question to be answered, is, what happens if commercial is built out and there has been no public safety built out yet? NPSTC has zero tolerance demand, but the FCC said no. TIA provided good interference predictions. Said there will be problems with base adjacent to mobiles for PS. FCC says it can be manageable. Speidel says PS has run out of administrative steps with the FCC, but PS may go to Congress.

NCC has asked the FCC to expand the authority of the SIECs. They will then be able to coordinate all I/O for all bands. This is under evaluation by the FCC. Stalemate in channel naming for the FCC. Thee commission does not want to standardize by rule any mnemonic for channels. Names for channels have no standard. There is no one naming convention for some of the most widely used channels around. As conventions can't be agreed to, the VHF/ UHF and 700 Multidiscipline channels are the focus now. Devine was tasked with the responsibility of developing channel naming conventions. Police chiefs and fire chiefs need to poll their people to see what's presently being called. Easy to name stuff that's not yet in use than to rename something used for 40 years. Nationwide CTCSS and appropriate NAC. Consensus for 156.7 Hz and \$61F (1567 decimal). This would be for all bands, but may not affect incumbent channels.

IP addressing – all data radios will accommodate minimum number of data interoperability. Some sort of IP addressing scheme. "PS.GOV?" then take dynamic IP assignments. Might be an SIEC function. Every radio will have to have a domain name that can be assigned dynamic IPs. It may be a stretch, but people from 900 miles away

may need interoperability with someplace. Thus far, no one has volunteered for data interoperability.

384 kbps (full motion video) for the 150 kHz aggregate. Lot of channels in reserve.

Devine: Nash says that everyone is trying to accomplish PSWAC recommendations through 700 MHz. This is not correct and public safety needs more spectrum. 180 units @ 125 kbps. That's 5 times faster than 19.2

CAPRAD training – Devine and Makky certain parameters available for the RPC chair. Discussion of CAPRAD capabilities.

Applications for the wideband data channels? Asked of the group. New modulation schemes may be achieve more than 384 kbps.

Fifth Report & Order – August, 2002. "technical and spectrum requirements for 700 MHz." 1) allow marketing/ manufacture 12/31/2006; filing 12/31/2006 legacy until 12/31/2016. As of 12/31/2006, we will not be able to buy a radio that will not have 6.25 kHz. 2016 is the drop-dead date. All 6.25 or equivalent. If you delay, you will be forced to buy 6.25 kHz by 12/31/2006 – but 10 years later, you will have to do something to further narrowband. Possible graceful migration. Southern California is giving out voice paths at 6.25. By the time the broadcasters are gone, there should be equipment and technology available.

Gleyana, any low power frequencies allocated for vehicular repeaters? Devine: some low power analog frequencies, but some can be allocated by RPC. Some of the 2 Watt is national some regional.

Speidel asks what RPC24 schedule is. Devine wants to see what the packing program says, but will continue on the regional packing as well. From the time we decide what the plan is, meeting ~December and hopefully submitted by January.

Discussion of interoperability channels and assignments of disciplines or non-discipline specific.

Albera: MARCer is placing a regional hospital communications system on the Johnson County/ KCK/ Wyandote Co/ Ray Co. trunked systems.

Next meeting, January 14<sup>th</sup>, 2003. State EOC at 1000 hrs. This will be a review of the packing and plan. Full meeting also at TanTara Friday, 0900 – 1100 14/15th in February. Pay for own room!!!

Motion to adjourn: Shook. Stump second

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F	Columbia Missourian	George Kennedy	editor@digmo.com
F	Eldon Advertiser	Tim Flora	advertiser@vernonpubl
F	Fayette Advertiser	Denny Davis	newspapr@mcmsys.co
F	Fulton Sun	Karen Atkin	www.news@fultonsun.i
F	The Gasconade County Republ	Bob McKee	wardpub@fidnet.com
F	The Glasgow Missourian	Sam, Mike, Bud	glasgow@mcmsys.com
F	KJLU-FM 88.9		
F	KLIK		www.klik1240.com
F	KREL-AM	Jeff S.	krel01@earthlink.net
F	KRMS Radio	Mike Anthony	mikeanthony@krmsrad
F	KZBK	Jeff Elliott	z969@shighway.com
F	The Maneater Newspaper	Paul Wilson	maneater@themaneat
F	Mexico Ledger	Tracey Berry	mexicoledger@mail.itw

The following news entities receive all MSHP news releases

F	Missouri Press Association	Kent Ford	kford@socket.net
F	Morgan County Press	Connie Viebrock	press@vernonpublishir
F	News Tribune	Richard	editor@newstribune.co
F	The Tipton Times	Becky Holloway	Times@vernonpublishi
F	Verailles Leader-Statesman	Bertha Evans	leaderstatesman@vern
F	Wellsville Optic-News	Gay Hagen	opticnews@socket.net

Missouri State Highway Patrol  
E-mail Listing

<b>Troop</b>	<b>Name</b>	<b>Contact</b>	<b>E-mail</b>
G	Cabool Enterprise	Dala Whittaker	cabent@pcis.net
G	Douglas County Herald	Keith Moore	dkmoore@goin.missou
G	Houston Herald	Brad Gentry	bgentry@houstonheral
G	Keystone News	Donna	ozarks_keystone@hotr
G	KUKU Radio	Laurie Good	oldies100@kuku.com
G	KUNQ Radio	Beatrice Hall	kunq@train.missouri.or
G	Mansfield Mirror	Sondra	sondra@mansfieldmirr
G	Ozark County Times	Betty S.	oct@ozarkcountytimes.
G	Ozark Radio Network	Brian Chase	news@kkountry.com
G	Quad County News	Betty Womack	qcn@townsqsr.com
G	Summersville Beacon	Barbara	sbeacon@train.missou
G	The Licking News	Eric Derrickson	thenews@fidnet.com
G	West Plains Daily Quill	Carol Bruce	quill@townsqsr.com
G	KHOM Radio	John M. Didiker	khom@khom.net
G	Howell County News	Kim Rich	

Missouri State Highway Patrol  
E-mail Listing

<b>Troop</b>	<b>Name</b>	<b>Contact</b>	<b>E-mail</b>
H	Atchison County Mail Weekly	Bill Farmer	amail@heartland.net
H	Albany Ledger	Terry Holub	ledger@ccp.com
H	Bethany Republican-Clipper	Phli Conger	rclipper@grm.net
H	Chillicothe Constitution	Catherine Stortz	ctribune@greenhills.ne
H	Clinton County Leader	Ron Johnson	
H	Gallatin North Missourian	Darryl W.	gpc@ponyexpress.net
H	Hamilton Advocate	Anne	annelorene@earthlink.i
H	KAAN Radio	Travis Preston	travisp@journalist.com
H	KNIM Radio	Matt	knimnews@knimmaryv
H	KTTN-KGOZ	Tom Mock	kttnamfm@grm.net
H	KXCV Radio	Eloise B.	bell@maill.nwmissouri.

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H	KZBK	Jeff Elliott	z969@shighway.com
H	Maryville Daily Forum	Becky Dailey	mdforum@asde.net
H	Mound City News	Linda B.	moundcitynews@socket
H	Nodaway News Leader	Kay Wilson	kwilson@msc.net
H	Rural Reporter	Pauli Slibowski	LPubl@aol.com
H	Savannah Reporter	Jim Arnold	caslonbld@aol.com
H	Sheridan Quad River News	Joe Stark	qdrvrnws@netins.net
H	St. Joseph News-Press	Kristi Bailey	kristib@npgco.com
H	Tarkio Avalanche	Will Johnson	avalanche@heartland.r
H	The Mirror	Alexis Martin	mirror@grm.net
H	The Times Tribune	Marla McElvain	ttribune@ccp.com
H	Trenton Republican-Times	Diane Raynes	trerepub@grm.net
H	Tri-County weekly	Natha McAllister	nert@grm.net

Missouri State Highway Patrol  
E-mail Listing

<b>Troop</b>	<b>Name</b>	<b>Contact</b>	<b>E-mail</b>
I	Bland Courier	Steve Adams	kjl@socket.net
I	Cuba Free Press	Rob Viehman	cfpss@fidnet.com
I	The Daily Guide	Amy Clarkson	cableamerica.hsa.com
I	KDAA		radio@fidmail.com
I	KFBD	Gary Linna	garys@kfbd-fm.com
I	KFLW		kflw@webound.com
I	KJEL/KBNN		ssmith@regionalradio.c
I	KJPW Radio	Warren G	kwcountry@webound.c
I	KKID Radio		kkid929fm@kkid929fm.
I	KLWT/KCLQ	Mike Hendee	news@pearsonbroadca
I	KTUI		john@ktui.com
I	KSMO AM1340		
I	KTTR-KZNN	Bob D	kttr-kznn@kttr-kznn.co
I	Lebanon Daily Record	Gary Sosniecki	editor@lebanondailyrec
I		Ed Sisson	news-ed@lebanondaily
I	Lebanon Cable 3 TV		newsimink@earthlink.n
I	Public Radio KUMR	Jim Sigler	kumr@umr.edu
I	Quad County Star Newspaper		dickens@misn.com
I	Richland Mirror	Gail Wright	rmirror@richlandmirror.
I	Rolla Daily News	RD Hohenfeldt	rdn@rollanet.org
I	Salem News	Donald Dodd	salnews@fidnet.com
I	St. James Leader-Journal	Leaman C.	stlj@tigernet.missouri.c
I	St. James Community Leader	Katie Schulz	shultz03@yahoo.com
I	Sullivan Independent News		nuz4u@fidnet.com
I	The Dixon Pilot	Connie B	news@dixonpilot.com

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I	The Pulaski Co. Democrat, Richland Waynesville Daily Guid	pcd@pulaskicountyden dailyfort@earthlink.net
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### Invitation to Bid - State of Washington

The State of Washington Office of State Procurement has released a Request for Information and will be releasing a Request for Proposal (RFP) for the purpose of establishing a convenience multi-state (NASPO/WSCA) contract for the purchase of public safety communication equipment and services, as they are needed.

Documents for the RFI are available electronically via the Internet at [www.ga.wa.gov/services/PCABidScheduleSu](http://www.ga.wa.gov/services/PCABidScheduleSu)

Register as a bidder for the State of Washington and this Western States Contracting Alliance electronically via the Internet at [www.ga.wa.gov/PCA/register.htm](http://www.ga.wa.gov/PCA/register.htm)

## Region 35 Announcement

The Region 35 (Oregon State) 700 MHz Public Safety Planning Committee announces its fifth meeting, June 4, 2003, 10:00 a.m. - 12:00 p.m. at the Mount Bachelor Village Resort and Conference Center, 19717 Mount Bachelor Drive, Bend, OR 97701

Call 1-800-452-9846 for directions to the meeting site.

All parties wishing to participate in the planning for the use of new public safety spectrum in the 700 MHz band within Region 35 should plan to attend. For further information about the meeting, please contact:

Sally Jones, Chair, Region 35, 700 MHz Planning Committee  
Administrator, Columbia 9-1-1 Communications District  
PO Box 998, St. Helens, OR 97051  
Ph: (503) 397-7255 ext. 223  
Fax: (503) 366-7196  
E-mail: [sjones@columbia911.com](mailto:sjones@columbia911.com)  
Website: [www.region35.org](http://www.region35.org)

## Region 24 Announcement

700 and 800 MHz Meetings

The Region 24 800 MHz Regional Planning Committee will meet Tuesday, July 1, 2003, at the Missouri State Emergency Management Agency meeting room at 2302 Militia Drive, Jefferson City, Mo.

The meeting begins at 9 a.m. The Region 24 700 MHz Regional Planning Committee will meet at 10 a.m. that day in the same place.

At 11 a.m., the Region 24 700 MHz Regional Planning Committee will convene for the express purpose of initiating consideration within the region of implementation of a future centrally allocated 49 GHz public safety band.

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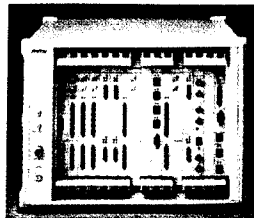


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[WWW.NEWMARTELECOM.COM](http://WWW.NEWMARTELECOM.COM)

### Signaling tester simulates a base station

The MD8480A W-CDMA signaling tester from **Anritsu** simulates a W-CDMA base station. The tester is useful to verify the modulation and demodulation of the mobile station or chipset, to confirm the call-processing

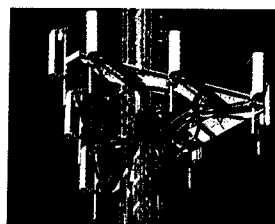


functionality between the base station and mobile station, and to simulate applications. The tester demodulates the data, then displays and compares it with the data output from the device.

[WWW.US.ANRITSU.COM](http://WWW.US.ANRITSU.COM)

### Antenna platform suited for lattice towers

**PiRod's** rotatable antenna mounting platform is specifically suited for lattice towers. The design allows it to be positioned to any azimuth independent of tower orientation, making it useful for collocation sites. This platform can be



installed on any guyed or self-supporting tower with straight or tapered lattice sections. Its low profile reduces wind loads. It is available in 13- or 15-foot face widths. A

handrail version is also available.

[WWW.PIROD.COM](http://WWW.PIROD.COM)

## Pack Your Suitcase

### January

**8-11: International Consumer Electronics Show**, sponsored by Consumer Electronics Association, Las Vegas Convention Center, Las Vegas Hilton and Alexis Park Hotel, Las Vegas. [www.cesweb.org](http://www.cesweb.org).

**10: Missouri Public Safety Region 24 Planning Committee for 700MHz**, Missouri State Highway Patrol General Headquarters second floor meeting room, 9 a.m. Contact: Stephen Devine at 573-526-6105 or [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us).

**24-25: Wireless E9-1-1 Implementation Plan**, presented by APCO and NENA, Omni Mandalay Hotel, Irving, TX. 888-APCO9-1-1 ext. 2454.

### February

**19-22: NATE**, sponsored by the National Association of Tower Erectors, The Rosen Centre Hotel and Orange County Convention Center, Orlando, FL. Contact: 888-882-5865 or [www.natehome.com](http://www.natehome.com).

**26: Region 13 Public Safety Planning Committee for 700MHz**, Taylorville Fire Department, Taylorville, IL, 10 a.m. Contact: George Sneyd at 217-558-6444 or [sneydge@isp.state.il.us](mailto:sneydge@isp.state.il.us).

### March

**18-20: CTIA Wireless 2002**, sponsored by the Cellular Telecommunications Industry Association, Orange County Convention Center, Orlando, FL. [www.ctiashow.com](http://www.ctiashow.com).

### April

**7-10: ENTELEC 2002**, sponsored by

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### May

**6-10: Vel**  
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**15-17: 5th Annual PCIA Tower and**

**Site Management Forum**, Westin Diplomat Resort, Hollywood, FL. [www.pcia.com](http://www.pcia.com).

**20-23: ASCENT Spring Conference**, sponsored by the Association of Communications Enterprises, Paris Las Vegas Hotel, Las Vegas. [www.ascent.org](http://www.ascent.org).

### June

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lines. The bulk of the expense is in the hub agency's CPU. Agencies can fund such a project through sharing the expenses or through 9-1-1 surcharges, possible grant-funding or even public and private donations.

Three such patching systems are now in operation. The first is a program called the Border Research and Technology Center (BORTAC). BORTAC was born out of a request by the U.S. Attorney for the southern district of California. Seeking a cost-effective method of radio interoperability in southern California, the U.S. Attorney turned to the U.S. Navy Public Safety Center in San Diego and the National Institute of Justice (NIJ) in Washington, D.C. The collaboration resulted in a radio-patching system that allowed 16 federal, state and local agencies in San Diego County to inter-communicate.

That program was so successful, it prompted a spin-off group, RIO-COM. RIO-COM is a radio-patching system that connects 11 agencies, including state, county and municipal police and the Federal Bureau of Investigation, the Immigration and Naturalization Service and U.S. Customs, all along the Rio Grand Valley south of Texas. RIO-COM's hub agency is the Brownsville (Texas) Police Department.

The third public safety radio-patching system is an NIJ program in Alexandria, Va., called the "Advanced Generation of Interoperability for Law Enforcement" (AGILE). The program was created in 1998 and is a test site for radio-patching. To date, it has been effective. Alexandria police and fire departments can now talk with one another and with county, state and several

federal agencies. Admittedly, it is a band-aid solution, but it is filling a void in public safety communications.

Radio-patching is only a short-term solution. Future technology will undoubtedly offer public safety agencies better solutions. However, those solutions will most likely come with hefty price tags, requiring new computer hardware and software, as well as radio equipment. Patching lets agencies communicate with one another effectively and now, at an affordable price.

As it becomes more multi-jurisdictional in its responses, public safety must broaden its communications abilities. Radio-patching is a step toward achieving that goal. ■

#### About the Author

*Terry Mors is an assistant professor with the Department of Law Enforcement and Justice Administration at Western Illinois University. He is a former instructor for the Criminal Justice Institute of Lake County (Ill.) and a former police commander. You can reach him by e-mail at Terry\_Mors@ccmail.wiu.edu*

## Region 24

### Region 24 700 & 800 MHz NPSPAC Meetings

**Thursday, Jan. 10, 2002**

Location: Missouri State Highway Patrol general headquarters, second floor meeting room.

The 800 MHz meeting begins at 9:00 a.m. Topics for discussion include:

- Updates on progress with regard to availability of 800 MHz allotments in the St. Louis metropolitan area.
- Updates on the ongoing discussions with Region 13 regarding pool allotments in St. Louis, St. Charles, Jefferson and Franklin counties and the city of St. Louis.
- A discussion of the submission of a new Region 24 800 MHz plan to the FCC that reflects changes in pool allotments from the current plan.
- A discussion of the availability of narrowband spectrum throughout Missouri and of whether Region 24's new plan should reflect pool allotments using both wideband (16K) and narrowband (11K) emissions.

The Region 24 700 MHz meeting will begin at 1 p.m. The following items are on the agenda:

- Acceptance of bylaws for Region 24 700 MHz plan.
- Final decisions on content of regional plan.
- Development of criteria for applicant eligibility.
- Update on NCC progress and current status of 700 MHz.
- Current availability of 700 MHz public safety spectrum in Missouri.
- Consideration of incumbent broadcasters.

Direct questions on either meeting to the chair of Region 24:  
Stephen T. Devine  
sdevine@mail.state.mo.us  
573/526-6105



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# Interoperability at 800 MHz: One Solution

M. Jay Groce • *Pennsylvania Chapter*

In 1987 the Federal Communications Commission (FCC) established a national plan that specifies policies and procedures governing the public safety pool. The national plan is contained in the Report and Order in General Docket #87-112. This plan establishes the planning regions that allocate the 230 channels of 800 MHz spectrum to be assigned for public safety use. Channels are assigned by regional planning committees under the guidelines set forth by the National Public Safety Planning Advisory Committee (NPSPAC).

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Stephen T. Devine  
sdevine@mail.state.mo.us  
573/526-6105

Agencies authorized to apply for licenses by a NPSPAC regional planning committee are required to provide access to their systems for mutual-aid purposes and for transient units to contact their agencies through the use of five conventional 800 MHz channels called "ITAC channels."

The ITAC channels are designated "ITAC 1" through "ITAC 5." ITAC 1 is the calling channel or national hailing channel, similar to the VHF high-band national police frequency.

The primary difference between the 800 MHz ITAC channels and the national police frequency is the 800 MHz channels are available to all public safety users in fire, EMS and law enforcement who access the system. The national police frequency was available only to law enforcement agencies.

While the concept seems sound, the public safety user-agencies operating in the area encompassing southeastern Pennsylvania, New Jersey and Delaware continue to experience inter-agency communications problems on the 800 MHz mutual-aid (ITAC) channels. The same problems occur in the 800 MHz band that occur in other radio bands in our area. These involve frequency congestion, a high population density, a high density of radios in use for public safety and the location of many tower sites within the area.

In Chester County, the four operational ITAC channels are located throughout the county to provide regional access for the various public safety agencies in that part of the county. Through this geographic location of the channels, we can make mutual-aid assignments by channel for operations in each area of the county when out-of-state or out-of-county agencies assist on incidents within Chester County.

## Channel-guard tones can prevent interference with repeaters in adjacent jurisdictions

In the state of Delaware's 800 MHz radio system, the national calling channel is designated "9-1-1 Help." Chester County has adopted this same terminology for the calling channel. This channel designation, 911HLP, appears on the display of each radio in the Chester County system when a user selects this channel. The Chester County 9-1-1 Communications Center monitors the channel and uses it as an emergency backup to its regular, trunked, simulcast radio system. It serves as an access channel for out-of-county units traveling through the area.

Because Chester County borders the state of Delaware, we have developed a standard for identifying the ITAC channels.

## 2001 National Regional Call for Papers

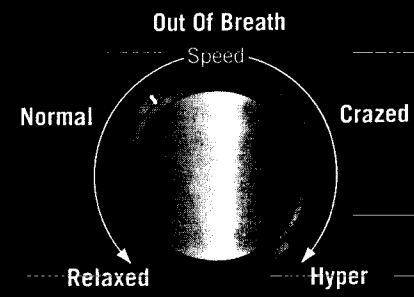
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- Training
- ADA
- Wireless
- Database/GIS
- Fire-related issues
- Technology

Must complete a Call-for-papers form for the conference and for the appropriate topic. Send the form to: [www.eventide.com](http://www.eventide.com)

Deadline for submission of abstracts is September 1, 2001. For more information, contact the Eventide office at 201-641-1200.

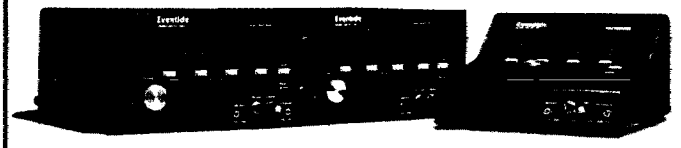
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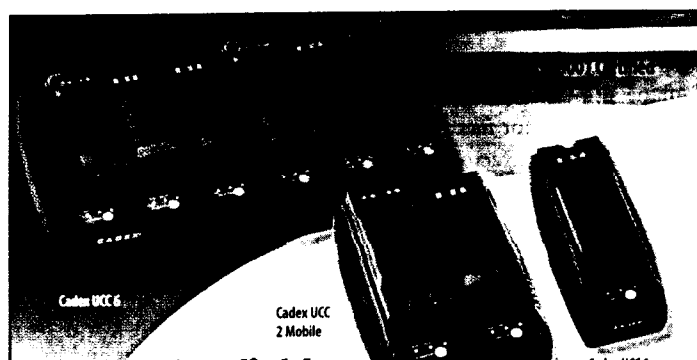


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Cadex Electronics Inc. [www.cadex.com](http://www.cadex.com)



Circle Information Card # 8

## Region 24, Missouri 700 MHz Planning Committee

The sixth meeting of the Region 24 National Public Safety Planning Advisory Committee will be held Tuesday, Sept. 18, 2001, at 5 p.m. (CST), at the Chateau on the Lake resort in Branson, Mo.

For further information, contact Stephen Devine, Region 24 Chair, by phone at (573) 526-6105 or by e-mail at [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us).

The committee meeting is open to the public. The committee urges all parties interested in public safety communications to attend.

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## Pack Your Suitcase

### September

**11-13: PCIA GlobalXChange**, sponsored by the Personal Communications Industry Association, Los Angeles Convention Center, Los Angeles. Contact: 703-739-0300 or [www.pcia.expoventure.com](http://www.pcia.expoventure.com).

**10-13: CTIA Wireless I.T. & Internet 2001**, San Diego Convention Center, San Diego. [www.wirelessIT.com](http://www.wirelessIT.com).

**12-13: C.O.P.S. West**, produced by the California Peace Officers' Association, Ontario Convention Center, Ontario, Canada. [www.copswest.com](http://www.copswest.com).

**18: Region 24 National Public Safety Planning Advisory Committee meeting**, 5 p.m., Chateau on the Lake Resort, Branson, MO. Contact: Steve Devine, 573-526-6105 or email [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us).

**19-22: Private Wireless Spectrum Management Conference & Expo**, sponsored by Industrial Telecommunications Association, the Council of Independent Communications Suppliers and the USMSS, Grand Hyatt Hotel, Washington. Contact: Ray

Wisniewski at 703-528-5115 or email: [ray@ita-relay.com](mailto:ray@ita-relay.com).

### November

**6-8: Canadian Wireless**, sponsored by the Canadian Wireless Telecommunications Association, Metro Toronto Convention Center. Contact: 613-233-4888, ext. 102, or [www.cwta.ca](http://www.cwta.ca).

**6-11: Communications Marketing Conference**, DoubleTree Hotel Tucson-Reid Park, Tucson, AZ. [www.commktga.com](http://www.commktga.com).

**12-15: AMTEX 2001**, sponsored by the American Mobile Telecommunications Association, Wyndham Miami Biscayne Bay, Miami. Contact: 202-331-7773. [www.amtausa.org](http://www.amtausa.org).

**12-15: IWTA 2001 Expo**, sponsored by the International Wireless Telecommunications Association, Wyndham Miami Biscayne Bay, Miami. [www.iwta.org](http://www.iwta.org).

**16: Radio Club of America Annual Awards Banquet and Technical Symposium**, New York, [www.radio-club-of-america.org](http://www.radio-club-of-america.org).

### 2002

MTG

### February

**19-22: NATE**, sponsored by the National Association of Tower Erectors, Orlando, FL. Contact: 888-882-5865 or [www.natehome.com](http://www.natehome.com).

### March

**7-10: Entelec 2002**, George R. Brown Convention Center, Houston. [www.entelec.org](http://www.entelec.org).

### April

**24-26: International Wireless Communications Expo**, co-sponsored by *Mobile Radio Technology*, Las Vegas Convention Center, Las Vegas. [www.iwceconexpo.com](http://www.iwceconexpo.com).

### June

**23-26: UTC Telecom**, sponsored by UTC, the United Telecom Council, MGM Grand, Las Vegas. [www.utc.org](http://www.utc.org).

### August

**11-15: APCO Conference & Exposition**, sponsored by APCO, Opryland Hotel, Nashville, TN. [www.apcointl.com](http://www.apcointl.com).

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## Pack Your Suitcase

Sept 2001

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### September

**11-13: PCIA GlobalXChange**, sponsored by the Personal Communications Industry Association, Los Angeles Convention Center, Los Angeles. Contact: 703-739-0300 or [www.pcia.expoventure.com](http://www.pcia.expoventure.com).

**10-13: CTIA Wireless I.T. & Internet 2001**, San Diego Convention Center, San Diego. [www.wirelessIT.com](http://www.wirelessIT.com).

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August 2001 RR  
Sept 2001 meeting

# CALENDAR

## PUBLIC SAFETY EVENTS

**August 1-2: Field Enterprise Solutions,** Chicago. Tom Shober, (800) 854-3112 ext. 8644, [www.advanstar.com](http://www.advanstar.com)

**September 9-12: 2001 AMRA International Symposium,** Quebec City, Quebec. Automatic Meter Reading Association: (847) 480-9628, [amra@amra-intl.org](mailto:amra@amra-intl.org)

**September 11-13: CTIA Wireless IT & Internet 2001,** San Diego. Cellular Telecommunications & Internet Association: Wendy Shaver, (202) 736-3247, [www.wow-com.com](http://www.wow-com.com)

**September 11-13: MobileEXPO,** Chicago. Contact (503) 670-6741, [www.mobileexpo.com](http://www.mobileexpo.com)

**September 11-14: PCIA GlobalXChange 2001,** Los Angeles. Kim Jones, (703) 535-7461, [www.pcia.com](http://www.pcia.com)

**September 19-22: Private Wireless Spectrum Management Conference & Exhibition 2001,** Washington, D.C. Industrial Telecommunications Association (ITA)/United States Motorola Service Stations Association (USMSSA): Ray Wisniewski, (703) 528-5115, [www.ita-relay.com](http://www.ita-relay.com)

**September 24-26: Fundamentals of Wireless Data Communications,** Madison, Wis. University of Wisconsin-Madison: (800) 462-0876; <http://epdweb.engr.wisc.edu>

**August 5-9: APCO International Conference and Expo 2001,** Salt Lake City. Pat Daniels, (904) 322-2500, [www.apco911.org](http://www.apco911.org)

**August 12-14: Street Smart and Address Savvy Conference,** Milwaukee. Urban and Regional Information Systems Association (URISA): Contact (847) 824-6300, [www.urisa.org](http://www.urisa.org)

**August 26-31: Navigator 2001,** New Orleans. LeAnn Packard, (801) 254-8909, [www.naemd.org](http://www.naemd.org)

**September 17-18: 9-1-1 NENA Critical Issues Forum,** Columbus, Ohio. Contact (800) 332-3911, [www.nena9-1-1.org](http://www.nena9-1-1.org)

**September 18: Region 24 700 MHz Meeting,** Branson, Mo. Region 24 National Public Safety Planning Advisory Committee: Stephen Devine, (573) 526-6105, [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)

**September 19-20: APCO Project 25 Symposium,** Pittsburgh, Pa. Contact (888) 272-6911, [www.apco911.org](http://www.apco911.org)

**Meeting: Sophia Amboule, France.** European Telecommunications Standards Institute: +33 4 67344333, [www.project25est.org/ap/sc/meeting03](http://www.project25est.org/ap/sc/meeting03)

**September: APCO Command Management Symposium,** Orlando, Fla. Contact (888) 272-6911, [www.apco911.org](http://www.apco911.org)

**October 4-6: APCO Project 25 Symposium,** Pittsburgh, Pa. Contact (888) 272-6911, [www.apco911.org](http://www.apco911.org)

**October 25-26: APCO ES-1-1 Symposium,** Knoxville, Tenn. Contact (888) 272-6911, [www.apco911.org](http://www.apco911.org)

**November 5-7: International Law Enforcement Expo 2001,** London, England. Gillian Pattison, +44 (0)20 8846 2700, [www.ile-expo.com](http://www.ile-expo.com)

**November 11-14: NENA 9-1-1 Best Practices Conference 2001,** St. Louis. Contact [www.nena9-1-1.org](http://www.nena9-1-1.org)

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# APC



## Conference & Trade Show

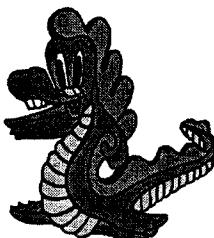
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[www.apco.ca](http://www.apco.ca)

**APCO Canada 2001 - A Communications Odyssey**

# CALENDAR

June 28 2001 meeting  
June 2001 RR MAS



**June 3-5: ITTI 2001**, Radisson Hotel Saint Paul, Saint Paul, Minn. Indian Telecom Training Initiative: (314) 205-0930, [www.fcc.gov/indians](http://www.fcc.gov/indians)

**June 3-7: Supercomm** World Congress Communications Industry / States Telecom Association: 7372, [www.supercomm.com](http://www.supercomm.com)

**June 4-7: ITS 2001**, Miami Intelligent Transportation Systems Conference: Martinez, (202) 484-2896, [www.itsa.org](http://www.itsa.org)

**June 11-12: AMTA Leadership Conference**, Sheraton Suites, Alexandria, Va. American Mobile Telecommunications Association: Craig Schaar, (202) 781-7819, [www.amtausa.org](http://www.amtausa.org)

**June 13-15: Summit on Wireless Computing**, Santa Clara Convention Center, Santa Clara, Calif. Contact: (978) 470-3880, [www.summitonwireless.com](http://www.summitonwireless.com)



**June 20-22: Mobile & Field Force Automation Conference and Exposition**, Hynes Convention Center, Boston, Mass. Contact: (978) 470-3880, [www.flaevent.com](http://www.flaevent.com)

**June 24-27: UTC Telecom 2001**, Midwest Express Center, Milwaukee. United Telecom Council: Makita Weaver, (202) 872-0031 ext. 206, [www.utc.org](http://www.utc.org)

**June 24-27: WCA 2001: Broadband Now!**, Boston World Trade Center, Boston. Wireless Communications Association: Joe Weedon, (202) 452-7823, [www.wca.org](http://www.wca.org)

**July 10-11: Wireless Partnerships & Alliances Congress 2001**, Crowne Plaza, San Francisco. Contact: (800) 882-8684, [www.iqpc.com](http://www.iqpc.com)

**July 11-13: RadioCom 2001**, Holiday Inn Plaza Dali, Mexico City. Asociación Nacional de Distribuidores de Equipos y Accesorios de Radiocomunicación (ANDEAR): Mary Loly Alvarez, +52 22-45193, [andear@bsd.puebla.megared.net.mx](mailto:andear@bsd.puebla.megared.net.mx)

**July 15-18: Forestry Conservation Communications Association National Conference**, Olympia, Wash. See [www.mashell.com/~fcca](http://www.mashell.com/~fcca)

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San

**September: MRFAC Fall Meeting**, time and location TBD. Manufacturers RadioFrequency Advisory Committee, Jim Pakla, (800) 262-9206, [www.mrfac.com](http://www.mrfac.com)

**October 1-2: Utilities Telecom Summit**, Dallas, Texas. United Telecom Council (UTC): Makita Weaver, (202) 872-0031 ext. 206, [www.utc.org](http://www.utc.org)

**November 6-8: Canadian Wireless 2001**, Toronto Convention Center, Toronto. Carrie Moussa, (613) 233-4888 ext. 104, [cmoussa@cwta.ca](mailto:cmoussa@cwta.ca)

**November 6-11: Communications Marketing Conference**, Tucson, Ariz. Jack Armstrong, (410) 308-0808

**November 12-13: AMTEX 2001**, Miami Wyndham Hotel, Miami. American Mobile Telecommunications Association (AMTA): Craig Schaar, (202) 835-7819, [www.amtausa.org](http://www.amtausa.org)

**November 17: RCA Annual Awards Banquet**, New York Athletic Club, New York City. Radio Club of America: Gerri Hopkins, (732) 842-5070

## PUBLIC SAFETY EVENTS

**June 7-8: APCO E9-1-1 Symposium**, Indianapolis, Ind. Contact: (888) 272-6911, [www.apco911.org](http://www.apco911.org)

**June 19-21: PSWN Regional Symposium**, Regal Minneapolis Hotel, Minneapolis, Minn. Contact: (800) 565-7796, [www.pswn.gov](http://www.pswn.gov)

**June 23-27: National Sheriff's Association 2001 Conference & Exhibition**, Fort Lauderdale, Fla. Contact: (800) 424-7827, [www.sheriffs.org](http://www.sheriffs.org)

**June 24-28: NENA 2001 Conference & Trade Show**, Marriott's Orlando World Center, Orlando, Fla. Tricia, (614) 459-7707, [www.nena9-1-1.org](http://www.nena9-1-1.org)

**June 26-27: Police-Security Expo 2001**, Atlantic City, N.J. Miles Watkin, (800) 323-1927, [www.police-security.com](http://www.police-security.com)

**June 28: Region 24 NPSPAC 800 MHz and 700 MHz Committee Meetings**, Missouri State Highway Patrol General Headquarters, Jefferson City, Mo. National Public Safety Planning Advisory Committee: Stephen Devine, (573) 526-6105, [sdevine@mail.state.mo.us](mailto:sdevine@mail.state.mo.us)

**July 20-27: IMSA Conference and School**, Radisson Riverfront Hotel, St. Paul, Minn. International Municipal Signal Association: (800) 723-4672, [www.imsasafety.org](http://www.imsasafety.org)

**August 5-9: APCO International Conference and Expo 2001**, Salt Lake City. Pat Daniels, (904) 322-2500, [www.apco911.org](http://www.apco911.org)

**August 26-31: Navigator 2001**, Sheraton New Orleans Hotel, New Orleans. LeAnn Packard, (801) 254-8909, [www.naemd.org](http://www.naemd.org)

**September: APCO Comm Center Management Symposium**, Orlando, Fla. (888) 272-6911, [www.apco911.org](http://www.apco911.org)

**October 25-26: APCO E9-1-1 Symposium**, Knoxville, Tenn. Contact: (888) 272-6911, [www.apco911.org](http://www.apco911.org)

**October: APCO Project 25 Symposium**, Pittsburgh, Pa. Contact: (888) 272-6911, [www.apco911.org](http://www.apco911.org)

\* For APCO and NENA state and local event information, see [www.apco911.org](http://www.apco911.org) and [www.nena9-1-1.org](http://www.nena9-1-1.org), respectively.

## Pack Your Suitcase

### June

**3-7: Supercomm**, sponsored by TIA and USTA, Georgia World Congress Center, Atlanta. Contact: 800-278-7372.

**11-12: AMTA's Annual Leadership Conference**, sponsored by the American Mobile Telecommunications Association, Sheraton Suites, Alexandria, VA. 202-331-7773 or [www.amtausa.org](http://www.amtausa.org).

**24-27: UTC Telecom**, sponsored by UTC, the United Telecom Council, Midwest Express Center, Milwaukee. Contact: 202-857-1881 or [www.utc.org](http://www.utc.org).

**24-28: NENA**, sponsored by the National Emergency Number Association, Orlando, FL. [www.nena9-1-1.org](http://www.nena9-1-1.org).

**28: NPSPAC Region 24 800MHz Committee meeting**, Missouri State Highway Patrol General Headquarters. Contact: Steve Devine, 573-526-6105.

### July

**15-18: Forestry Conservation Communications Association National Conference**, Olympia, WA. [www.mashell.com/~robblee/fcca.htm](http://www.mashell.com/~robblee/fcca.htm).

**17-18: European Business Wireless Congress**, sponsored by the International Wireless Telecommunications

Association, Prague. Contact: Ryan Cleveland, 202-331-7773.

### August

**5-9: Association of Public-Safety Communications Officials-International (APCO) National Conference**, Salt Palace Convention Center, Salt Lake City. Contact: 904-322-2500 or [www.apco-intl.org](http://www.apco-intl.org).

### September

**11-14: PCIA GlobalXChange**, sponsored by the Personal Communications Industry Association, Los Angeles Convention Center, Los Angeles. Contact: 703-739-0300 or [www.pcia.expo.venture.com](http://www.pcia.expo.venture.com).

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### 2002

#### March

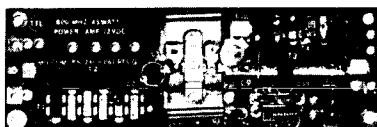
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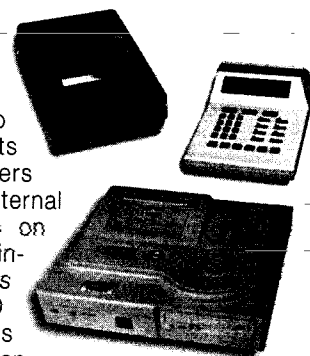
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### May

**6-9: Spring Vehicular Technology Conference**, sponsored by the IEEE Vehicular Technology Society, David Intercontinental Hotel, Tel Aviv, Israel. Contact: 972-3-6133340 or [congress.co.il/ieee\\_news/index1.html](http://congress.co.il/ieee_news/index1.html).

**8: Tennessee Region 39 700MHz Planning Committee meeting**, Ellington Agricultural Center, Nashville. Contact: John Johnson, 615-741-3826, [jjohnson@tnema.org](mailto:jjohnson@tnema.org).

**8-9: EPRI Powering the Digital Economy Workshop**, Westin Crown Center, Kansas City, MO. Contact: Lea Ann Lawson, 865-218-8028.

**13-17: APCO East Coast Regional Conference**, sponsored by the Association of Public Safety Officials-International, Lancaster Host Resort, Lancaster, PA. Contact: Jay Groce III, 610-344-5084.

**16-18: PCIA Tower and Site Management Conference**, sponsored by the Personal Communications Industry Association, Doral Golf Resort and Spa, Miami. Contact: 703-739-0300.

**21-24: Telecommunications Resellers Association Spring Confer-**

**ence and Exhibition**, sponsored by TRA, Adam's Mark Hotel, Dallas. [www.tra.org](http://www.tra.org).

### June

**3-7: Supercomm**, sponsored by TIA and USTA, Georgia World Congress Center, Atlanta. Contact: 800-278-7372.

**24-27: UTC Telecom**, sponsored by UTC, the United Telecom Council, Midwest Express Center, Milwaukee. Contact: 202-857-1881 or [www.utc.org](http://www.utc.org).

**24-28: NENA**, sponsored by the National Emergency Number Association, Orlando, FL. [www.nena9-1-1.org](http://www.nena9-1-1.org).

**28: NPSPAC Region 24 800MHz Committee meeting**, Missouri State Highway Patrol General Headquarters. Contact: Steve Devine, 573-526-6105.

### July

**15-18: Forestry Conservation Communications Association National Conference**, Olympia, WA. [www.mashell.com/~roblee/fcca.htm](http://www.mashell.com/~roblee/fcca.htm).

**17-18: European Business Wireless Congress**, sponsored by IWTA, Prague. Contact: Ryan Cleveland, 202-331-7773.

### August

**5-9: Association of Public-Safety Communications Officials-International (APCO) National Conference**, Salt Lake City. Contact: 904-322-2500 or [www.apco-intl.org](http://www.apco-intl.org).

### September

**11-14: PCIA GlobalXChange**, sponsored by the Personal Communications Industry Association, Los Angeles Convention Center, Los Angeles. Contact: 703-739-0300 or [www.pcia.expo.venture.com](http://www.pcia.expo.venture.com).

**19-22: Private Wireless Spectrum Management Conference & Expo**, sponsored by Industrial Telecommunications Association, the Council of Independent Communications Suppliers and the USMSS, Grand Hyatt Hotel, Washington. Contact: Ray Wisniewski at 703-528-5115 or email: [ray@ita-relay.com](mailto:ray@ita-relay.com).

### November

**6-8: Canadian Wireless**, sponsored by the Canadian Wireless Telecommunications Association, Metro Toronto Convention Center, Toronto. Contact: 613-233-4888, ext. 102, or [www.cwta.ca](http://www.cwta.ca).



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